

November 20, 2020



NDSIB Fee Study: Fiscal Year 2020

Pension Trust, Insurance Trust,
and Legacy Fund

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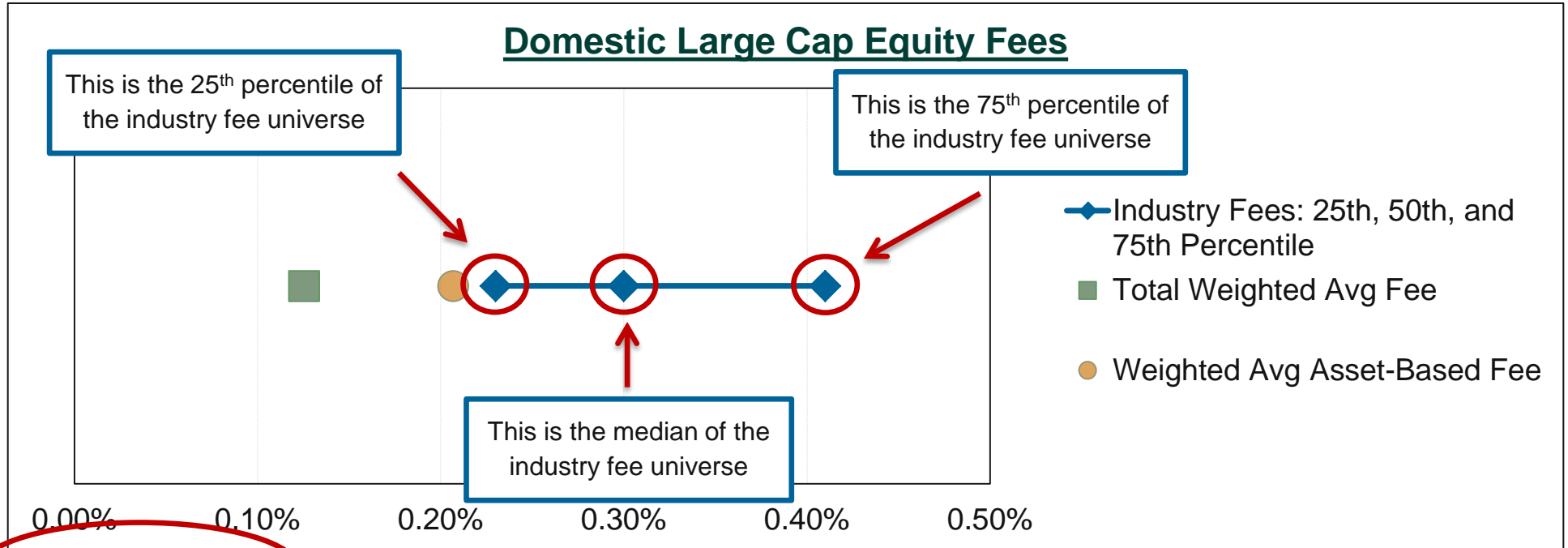
Summary Comments on 2020 Fee Study

NDSIB – Pension Trust, Insurance Trust, and Legacy Fund

- All market values and fee data are as of fiscal year end June 30, 2020.
- Investment managers employ three primary fee calculation methods to charge for their services;
 - **Asset-Based Fees:** fees are calculated as a percentage of assets under management.
 - **Performance-Based Fees:** fees are calculated on outperformance relative to a pre-specified benchmark during a contracted measurement period.
 - **Hybrid Fees:** A combination of an asset-based fee and a performance-based fee schedule.
- Three different techniques are used to calculate fees as weighted averages:
 - **Weighted Average Asset-based Fee:** applied to managers employing asset-based fees. This technique applies to most managers.
 - **Weighted Average Performance / Hybrid Fee:** applied only to those managers that employ either a performance or hybrid fee.
 - **Total Weighted Average Fee:** a weighted average based on account size when there are multiple managers within an asset class.
- In all cases, fees were calculated as a percentage of average quarterly assets under management for the purposes of comparison to reduce the impact of those accounts experiencing asset flows during the fiscal year.
- In many instances, fees paid by the individual trusts benefit from fee schedules that account for the aggregate level of assets invested across all three plans.
- Fee universes used in the study reflect peer management fees and are represented by either:
 - **Actual Fees** paid by Callan survey respondents who invest in similar mandates,
 - **Published Fees** calculated using a universe of manager fee schedules for similar mandates, or;
 - An **Average of Actual and Published Fee** universes. This method was employed where the Actual Fee universe was smaller than 30.
- All fee universes are explicitly noted beneath each chart where “n=” will denote the applicable sample size.
- Greater detail on fee measurements and data are available on the last page of the report.

Sample Chart

Explanatory Slide



N=61, Actual Fee Universe

This illustrates the number of constituents and the type of fee that was surveyed to create the sample universe

Sample Table

Explanatory Slide

Domestic Large Cap Equity			
Managers with asset-based fees	{	Asset-Based Fee Strategies	Fee %
		L.A. Capital Growth	0.21%
		Weighted Average Asset-Based Fee	0.21%
Managers with performance and hybrid Fees	{	Performance and Hybrid Fee Strategies	Fee %
		L.A. Capital Enhanced Index	0.21%
		Northern Trust Enhanced S&P 500	0.00%
		Clifton Enhanced S&P 500	0.00%
		Weighted Average Performance and Hybrid Fee	0.07%
		Total Weighted Average U.S. Lg Cap Fee	0.13%
Industry fee distribution	{	Industry Fee - 25th Percentile	0.23%
		Industry Fee - Median	0.30%
		Industry Fee - 75th Percentile	0.41%

N=61, Actual Fee Universe

This is the weighted average fee rate paid to managers with an asset-based fee

This is the weighted average fee rate paid to managers with a performance / hybrid based fee

This is the weighted average fee rate paid to all managers

Callan

Pension Trust

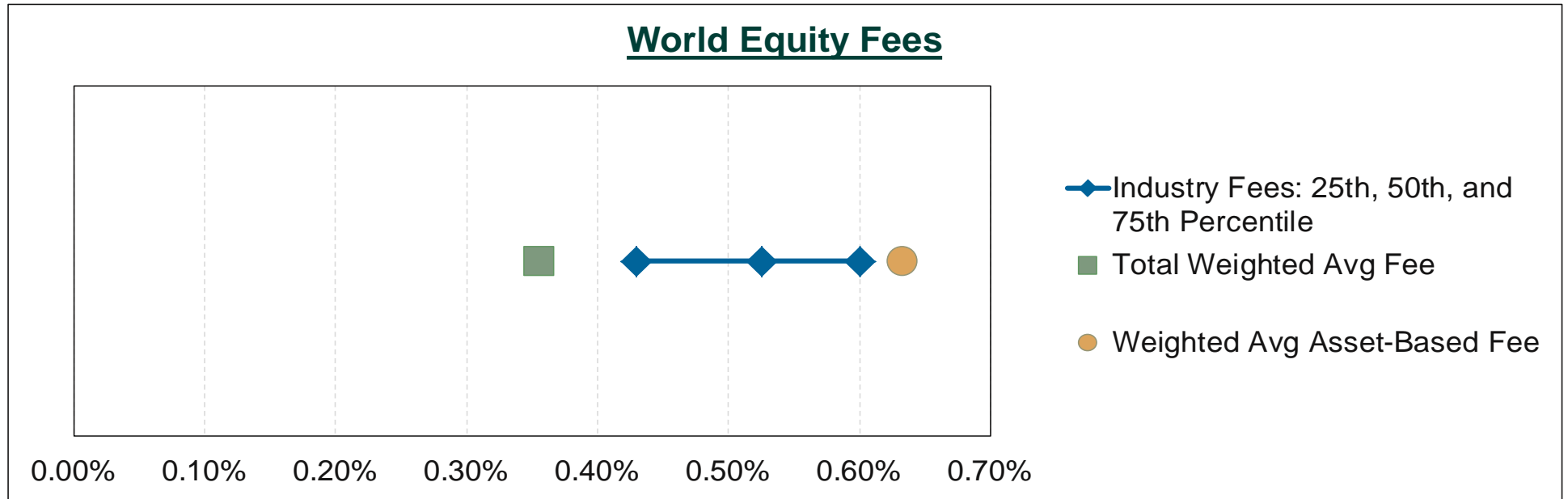
Pension Trust

NDSIB Pension Trust Fee Study Fiscal Year 2020 Executive Summary

- The Total Pension Trust's Equity manager fees paid represented a mix of asset-based and performance and hybrid fee strategies.
 - Total World Equity fees were below the 25th percentile of the industry universe, helped by performance and hybrid fee structures.
 - Total Domestic Large Cap Equity asset-based and performance and hybrid fee strategies were below the 25th percentile of the industry universe.
 - Total Small Cap Equity fees were below the 25th percentile of the industry universe, with asset-based fees being closer to the median.
 - Developed International Equity fees were below the 25th percentile and represented only asset-based fee strategies.
 - Emerging Market Equity fees were above the 75th percentile, largely due to performance and hybrid based fee structures.
- The Total Pension Trust's Fixed Income manager fees paid represent a mix of asset-based and performance and hybrid fee strategies.
 - Total Investment Grade Fixed Income fees paid were above the 75th percentile, driven largely by performance and hybrid fee based strategies.
 - Total Below Investment Grade Fixed Income fees paid were above the 75th percentile, driven largely by performance and hybrid fee based strategies.
- The Total Pension Trust's Real Estate manager fees paid represented a mix of asset-based and performance and hybrid fee strategies. Both asset-based fee strategies and performance and hybrid strategies fell below the 25th percentile of the peer universe.
- The Total Pension Trust's Real Assets represents a variety of inflation-sensitive strategies including Timber and Infrastructure. Due to the custom nature of these strategies, no applicable manager fee distribution is available.
 - Fee structures do however appear to follow industry norms and standards.
- The Total Pension Trust's Private Equity represents a variety of strategies and investment vehicles that cannot produce a reasonable industry fee universe for comparison.
 - Fee structures do however appear to follow industry norms and standards.

World Equity

Pension Trust



N=224, Average of Actual Fee Universe (N=12) and Published Fee Universe (N=212)

- North Dakota Pension Trust's World equity managers invest in stocks traded in both U.S. and non-U.S. markets.
- North Dakota Pension Trust's average World Equity account size for FY 2020 was \$454mm.
- The orange circle represents North Dakota Pension Trust's World Equity weighted average asset-based management fee of 0.63%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.36%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$300mm and \$600mm.

World Equity

Pension Trust

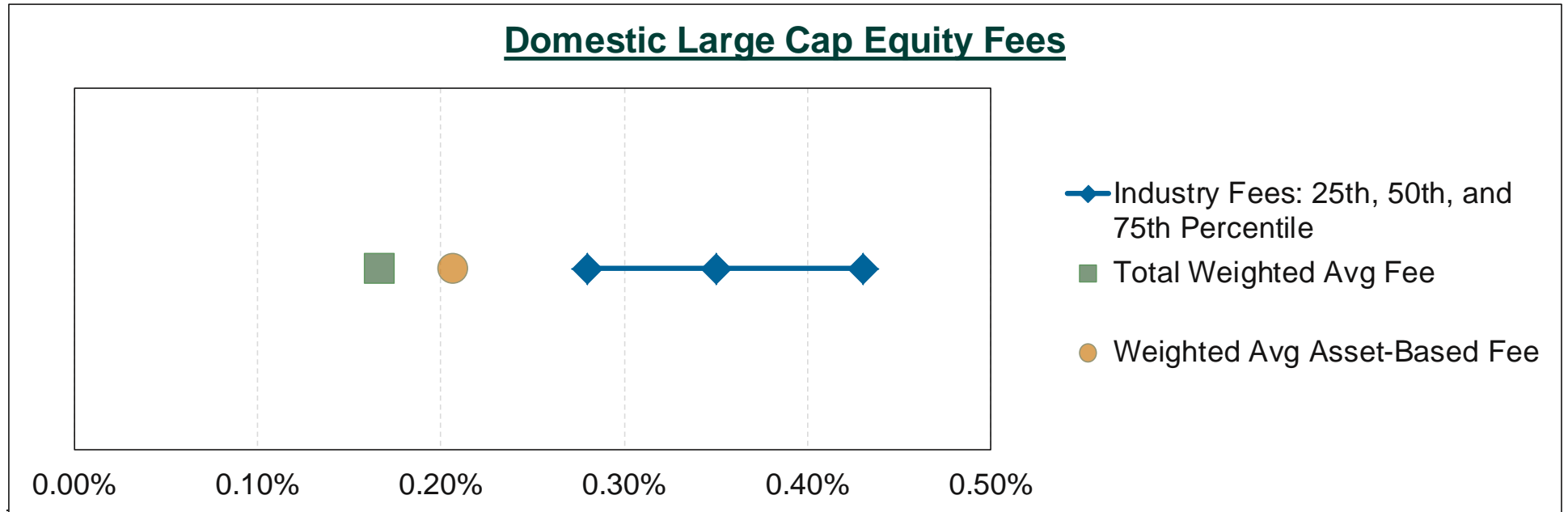
World Equity	
Asset-Based Fee Strategies	Fee %
EPOCH Inv. Partners	0.63%
Weighted Average Asset-Based Fee	0.63%
Performance and Hybrid Fee Strategies	Fee %
LSV Asset Management	0.10%
Weighted Average Performance & Hybrid Fee	0.10%
Total Weighted Average World Equity Fee	0.36%
Industry Fee - 25th Percentile	0.43%
Industry Fee - Median	0.53%
Industry Fee - 75th Percentile	0.60%

N=224, Average of Actual Fee Universe (N=12) and Published Fee Universe (N=212)

- During the 2020 FY, the World Equity portfolio fees were below those of industry peers. This is largely attributable to the hybrid fee structure of LSV Asset Management.
 - Performance fees are paid to the fund on excess return against the index; however, LSV underperformed the MSCI ACWI by over 10 percentage points on a gross basis in FY 2020.

Domestic Large Cap Equity

Pension Trust



N=43, Actual Fee Universe

- North Dakota Pension Trust's Domestic Large Cap Equity managers invest in large company stocks that are typically listed and traded within the U.S.
- North Dakota Pension Trust's average Domestic Large Cap Equity account size for FY 2020 was \$252mm.
- The orange circle represents North Dakota Pension Trust's Domestic Large Cap Equity weighted average asset-based management fee of 0.21%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.17%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Domestic Large Cap Equity

Pension Trust

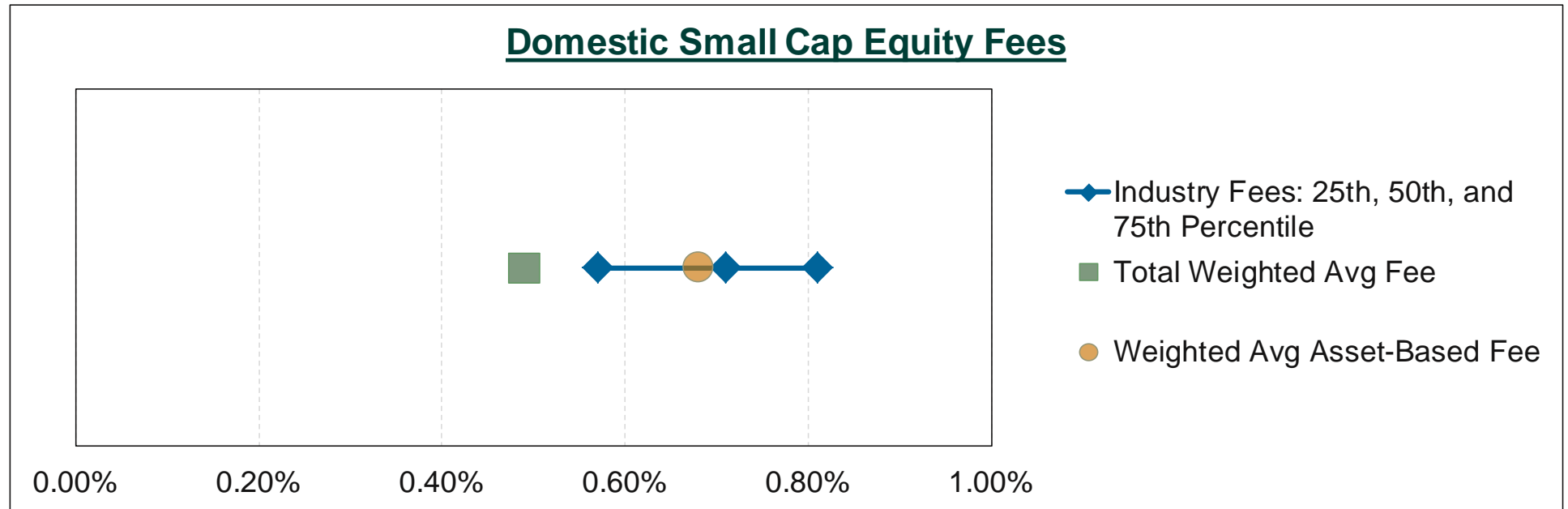
Domestic Large Cap Equity	
Asset-Based Fee Strategies	Fee %
L.A. Capital Growth	0.21%
Weighted Average Asset-Based Fee	0.21%
Performance and Hybrid Fee Strategies	Fee %
L.A. Capital Enhanced Index	0.41%
Northern Trust Enhanced S&P 500	0.00%
Parametric Large Cap	0.00%
Weighted Average Performance and Hybrid Fee	0.14%
Total Weighted Average U.S. Lg Cap Fee	0.17%
Industry Fee - 25th Percentile	0.28%
Industry Fee - Median	0.35%
Industry Fee - 75th Percentile	0.43%

N=43, Actual Fee Universe

- The North Dakota Pension Trust's Domestic Large Cap Equity portfolio employs several managers with performance and hybrid fee structures and is therefore difficult to compare directly to industry averages.
 - Northern Trust Enhanced Index charges no base management fee. The only fee charged is on excess performance relative the benchmark and the manager underperformed the S&P 500 in the 2020 fiscal year.
 - Parametric Clifton Enhanced Index charges no base management fee. The only fee charged is on the excess return generated. Fees are paid once a year for performance through June 30.
 - L.A. Capital Enhanced Index charges a base management fee on all assets under management in addition to a performance based fee on a portion of the assets.

Domestic Small Cap Equity

Pension Trust



N=69, Actual Fee Universe

- North Dakota Pension Trust Small Cap Equity managers invest in smaller company stocks that are typically listed and traded within the U.S.
- North Dakota Pension Trust's average Domestic Small Cap Equity account size for FY 2020 was \$145mm.
- The orange circle represents North Dakota Pension Trust's Domestic Small Cap Equity weighted average asset-based management fee of 0.68%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.49%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$50mm and \$150mm.

Domestic Small Cap Equity

Pension Trust

Domestic Small Cap Equity	
Asset-Based Fee Strategies	Fee %
Atlanta Capital	0.68%
Weighted Average Asset-Based Fee	0.68%
Performance and Hybrid Fee Strategies	Fee %
Parametric Small Cap	0.30%
Weighted Average Performance & Hybrid Fee	0.30%
Total Weighted Average U.S. Sm Cap Fee	0.49%
Industry Fee - 25th Percentile	0.57%
Industry Fee - Median	0.71%
Industry Fee - 75th Percentile	0.81%

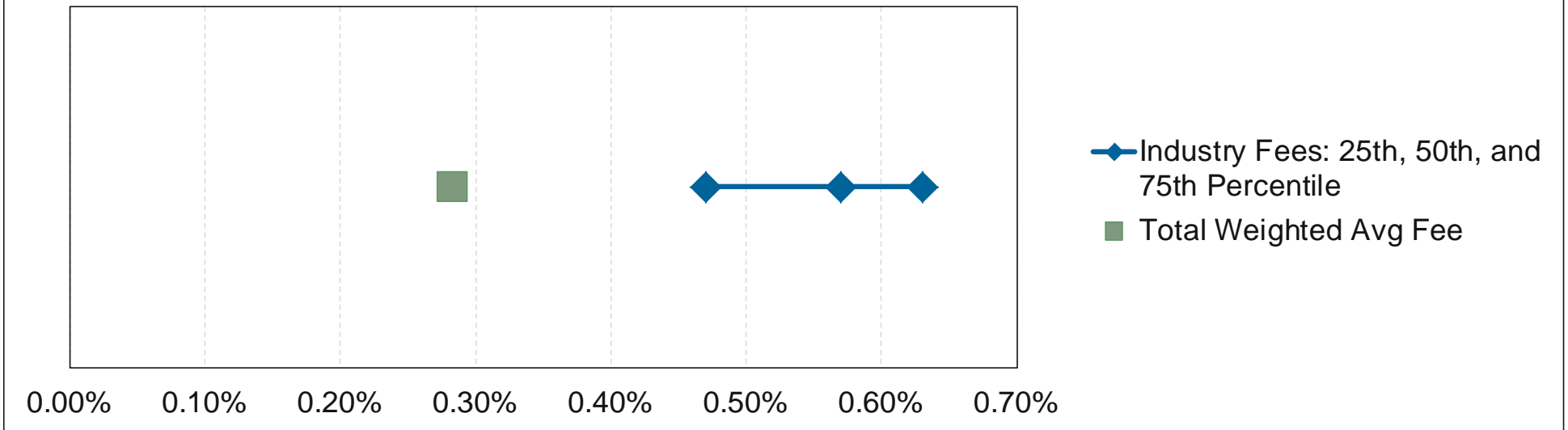
N=69, Actual Fee Universe

- Due to the fee structure of the funds in the Performance and Hybrid Fee Strategies category, the total weighted average fees are not comparable to industry fees from Callan's 2019 Investment Management Fee Survey.
 - Parametric Clifton Enhanced Small Cap charges no base management fee. The only fee charged is on the excess return generated over the index. Fees are paid once a year for performance through June 30.

Developed International Equity

Pension Trust

Developed International Equity Fees



N=48, Actual Fee Universe

- North Dakota Pension Trust's Developed International Equity managers invest in stocks that trade and gain exposure to developed markets and economies outside of the U.S.
- North Dakota Pension Trust's average Developed International Equity account size for FY 2020 was \$170mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.28%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$100mm and \$300mm.

Developed International Equity

Pension Trust

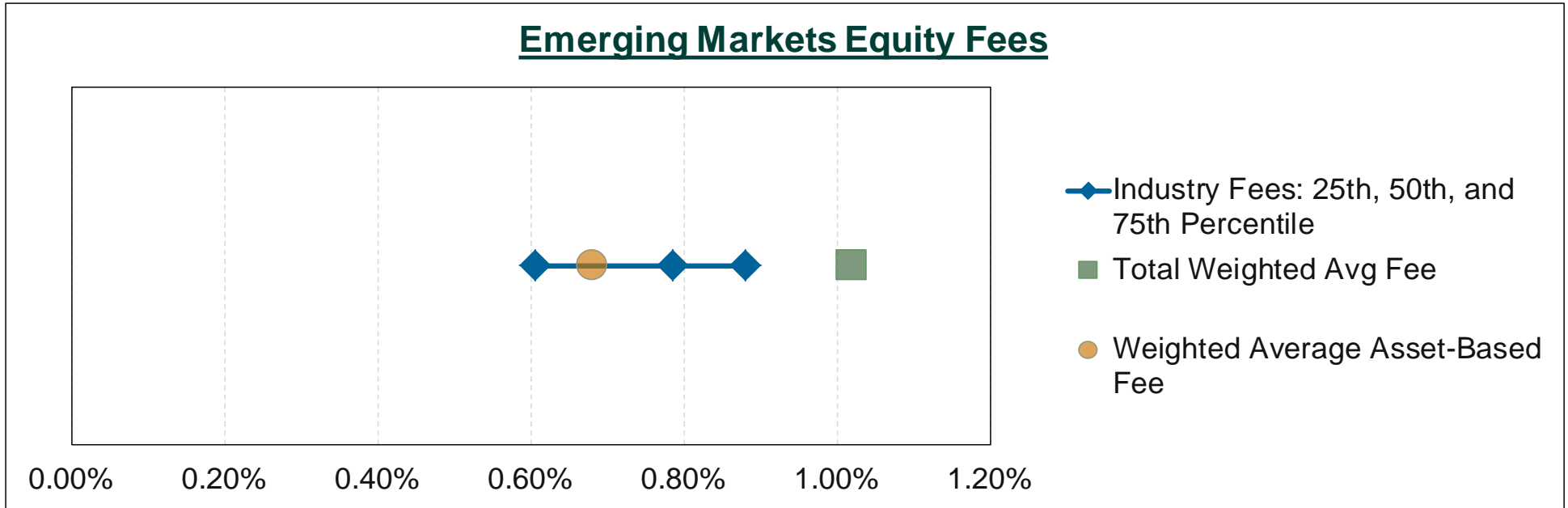
Developed International Equity	
Asset-Based Fee Strategies	Fee %
DFA International Small Cap Value	0.68%
Northern Trust World ex-US	0.03%
Wellington Intl SC Opp	0.87%
William Blair	0.35%
Total Weighted Average Dev. Intl Equity Fee	0.28%
<hr/>	
Industry Fee - 25th Percentile	0.47%
Industry Fee - Median	0.57%
Industry Fee - 75th Percentile	0.63%

N=48, Actual Fee Universe

- All managers for this asset class fall into the asset-based fee category.
- The total weighted average fee for the asset class falls below the industry average for active managers.
 - However, note that Northern Trust is a passive manager and passive strategies tend to charge lower fees than active ones do. The inclusion of Northern Trust therefore skews the total weighted average fee below what the total weighted average fee would be if the fund was excluded from the group.

Emerging Markets Equity

Pension Trust



N=102, Average of Actual Fee Universe (N=19) and Published Fee Universe (N=83)

- North Dakota Pension Trust's Emerging Markets Equity managers invest in stocks that gain exposure to emerging market economies.
- North Dakota Pension Trust's average Emerging Markets Equity account size for FY 2020 was \$101mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 1.02%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$100mm and \$300mm.

Emerging Markets Equity

Pension Trust

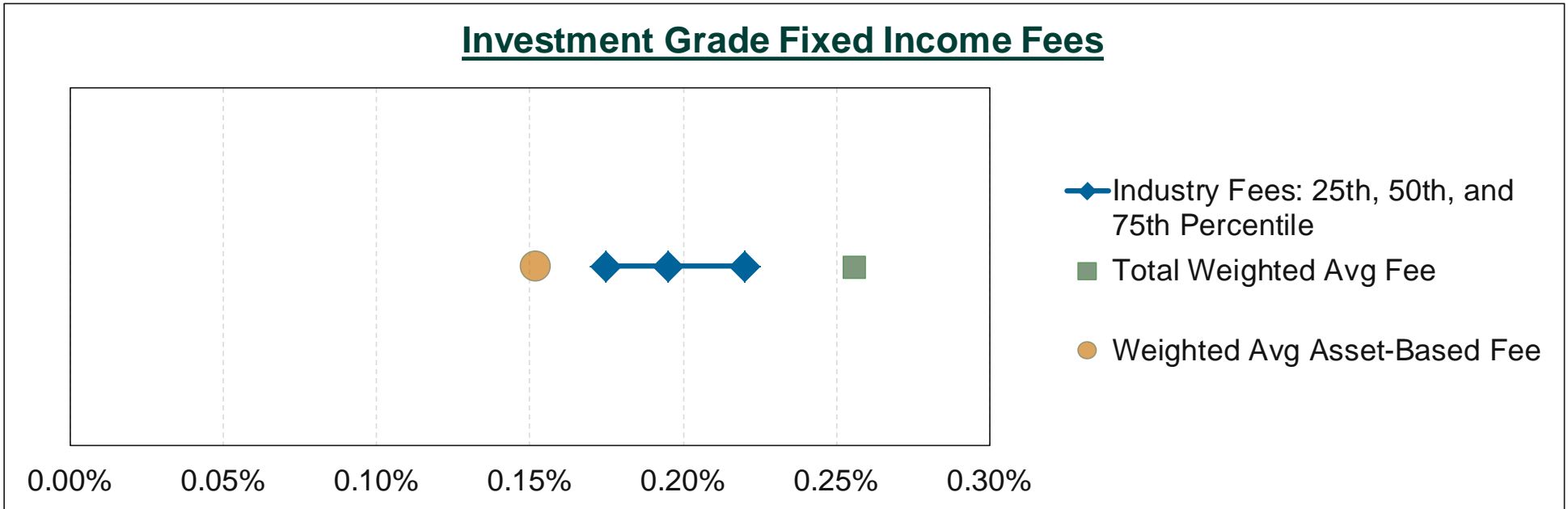
Emerging Markets Equity	
Asset-Based Fee Strategies	Fee %
DFA Emerging	0.70%
Weighted Average Asset-Based Fee	0.70%
Performance and Hybrid Fee Strategies	Fee %
Axiom	1.13%
Weighted Average Performance & Hybrid Fee	1.13%
Total Weighted Average EM Equity Fee	1.02%
Industry Fee - 25th Percentile	0.61%
Industry Fee - Median	0.79%
Industry Fee - 75th Percentile	0.88%

N=102, Average of Actual Fee Universe (N=19) and Published Fee Universe (N=83)

- North Dakota Pension Trust's Emerging Markets Equity portfolio employs one manager with a performance and hybrid fee structure and one with an asset-based fee structure.
- North Dakota' Pension Trust's asset-based fee strategies are below the peer universe median. The total weighted average fee for the asset class is above the 75th percentile, due to the performance and hybrid fee structure.
- Axiom's performance fee alone accounted for roughly 46% of the total fees paid to Emerging Markets Equity strategies.

Investment Grade Fixed Income

Pension Trust



N=106, Average of Actual Fee Universe (N=25) and Published Fee Universe (N=81)

- North Dakota Pension Trust's Investment Grade Fixed Income managers invest in bonds and other debt instruments that are rated "investment grade" by rating agencies and/or investment analysts.
- North Dakota Pension Trust's average Investment Grade Fixed Income account size for FY 2020 was \$199mm.
- The orange circle represents North Dakota Pension Trust's Investment Grade Fixed Income weighted average asset-based management fee of 0.15%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.26%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Investment Grade Fixed Income

Pension Trust

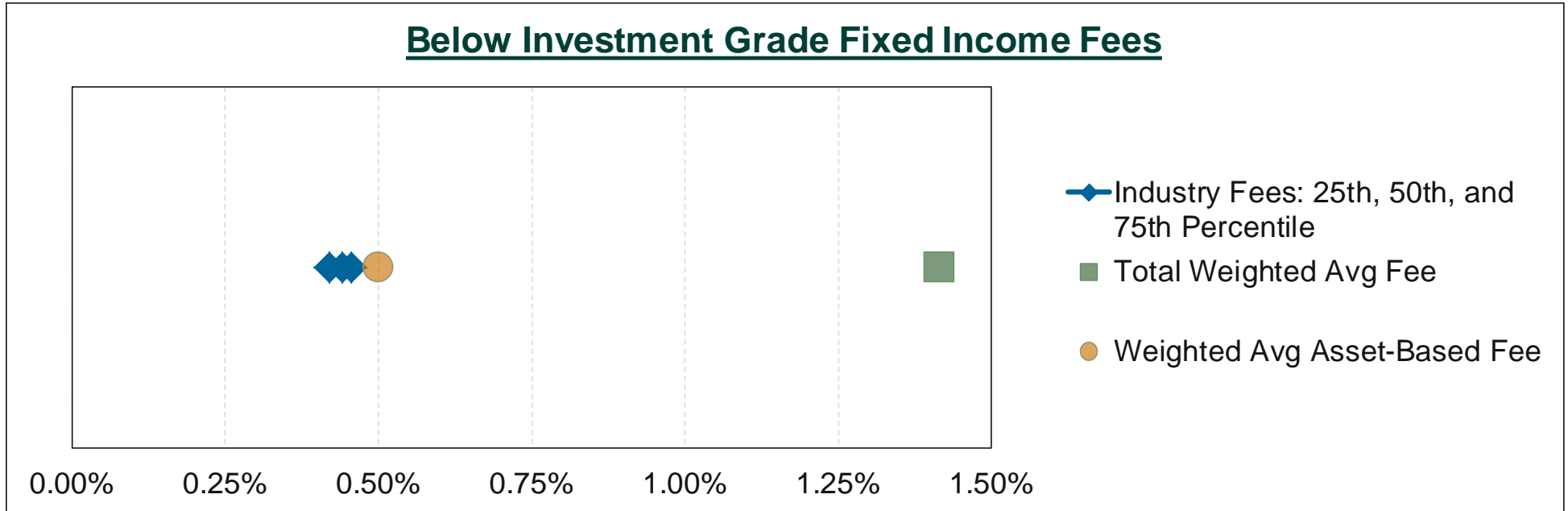
Investment Grade Fixed Income	
Asset-Based Fee Strategies	Fee %
Declaration Total Return	0.37%
Prudential	0.12%
SSgA Long U.S. Treasury Index	0.02%
Weighted Average Asset-Based Fee	0.15%
Performance and Hybrid Fee Strategies	Fee %
PIMCO DiSCO II	1.17%
PIMCO Core Plus Constrained	0.16%
Weighted Average Performance & Hybrid Fee	0.38%
Total Weighted Average IG Fixed Income Fee	0.26%
Industry Fee - 25th Percentile	0.18%
Industry Fee - Median	0.20%
Industry Fee - 75th Percentile	0.22%

N=106, Average of Actual Fee Universe (N=25) and Published Fee Universe (N=81)

- North Dakota Pension Trust's Investment Grade Fixed Income portfolio employs both asset-based fee strategies and performance and hybrid fee structures.
- The weighted average asset-based fee falls in the bottom quartile among peers, while the performance and hybrid strategies pushes the total weighted average fee into the top quartile among peers.

Below Investment Grade Fixed Income

Pension Trust



N=113, Average of Actual Fee Universe (N=13) and Published Fee Universe (N=100)

- North Dakota Pension Trust's Below Investment Grade (I.G.) Fixed Income managers invest in bonds and other debt instruments that are rated below "investment grade" by rating agencies and/or investment analysts.
- North Dakota Pension Trust's average Below I.G. Fixed Income account size for FY 2020 was \$69mm.
- The orange circle represents North Dakota Pension Trust's Below IG Fixed Income weighted average asset-based management fee of 0.5%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 1.41%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes below \$200mm.

Below Investment Grade Fixed Income

Pension Trust

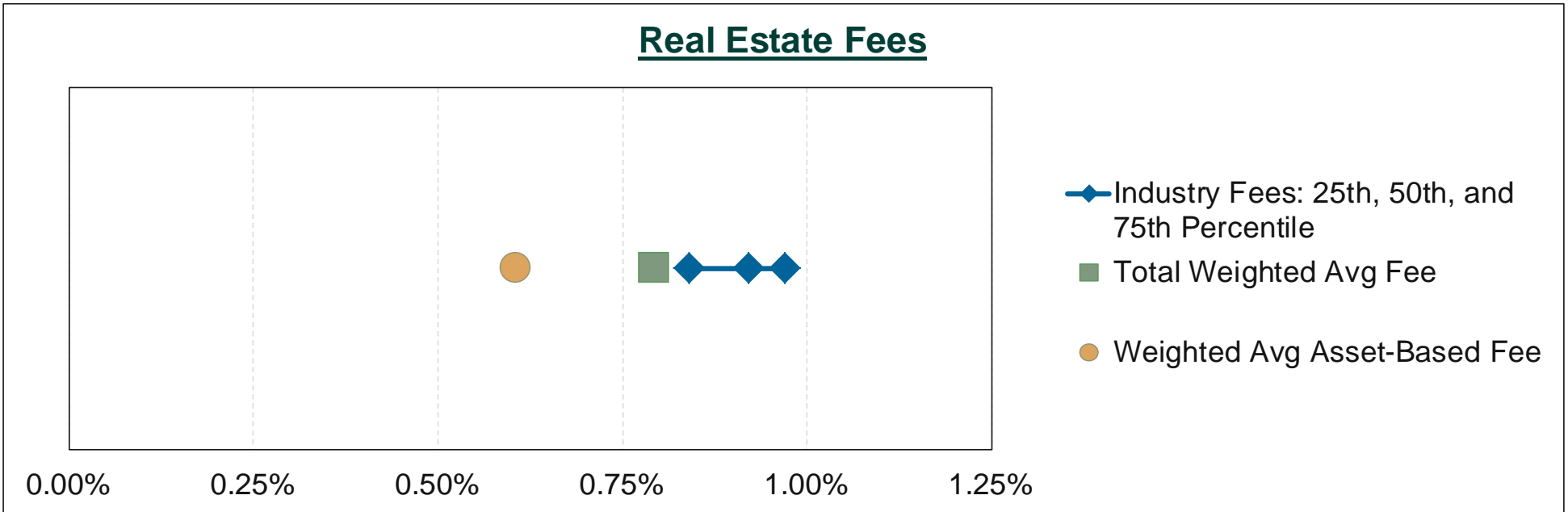
Below Investment Grade Fixed Income	
Asset-Based Fee Strategies	Fee %
Loomis Sayles	0.50%
Weighted Average Asset-Based Fee	0.50%
Performance & Hybrid Fee Strategies	Fee %
Ares Credit Strategies	1.60%
Cerberus Private Credit	2.83%
Goldman Sachs 2006 Offshore	14.07%
Goldman Sachs V Offshore	12.14%
PIMCO Bravo II	0.00%
Weighted Average Performance & Hybrid Fee	2.04%
Total Weighted Average Below-IG FI Fee	1.41%
Industry Fee - 25th Percentile	0.42%
Industry Fee - Median	0.44%
Industry Fee - 75th Percentile	0.46%

N=113, Average of Actual Fee Universe (N=13) and Published Fee Universe (N=100)

- Due to the fee structure of the funds in the performance and hybrid fee strategies category, the total weighted average fees are not comparable to industry fees from Callan’s 2019 Investment Management Fee Survey.
 - Goldman Sachs 2006 Offshore and V Offshore both have a hybrid fee structure. Both funds also experienced a declining asset base throughout the fiscal year and only account for 0.007% of the total average asset value of the Pension Trust for the fiscal year.
 - PIMCO Bravo II charges both a management fee and a performance fee of excess returns over a specified “hurdle” rate. During the fiscal year, the manager underperformed this hurdle rate and provided performance fee “credits” in excess of the total fees charged.

Real Estate

Pension Trust



N=66, Average of Actual Fee Universe (N=29) and Published Fee Universe (N=37)

- North Dakota Pension Trust's Real Estate managers invest directly in real properties (e.g. offices, multi-family, retail, and other physical properties) and securities that gain access to such economic interests.
- North Dakota Pension Trust's average Real Estate account size for FY 2020 was \$95mm.
- The orange circle represents North Dakota Pension Trust's Real Estate weighted average asset-based management fee of 0.61%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.79%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$50mm and \$150mm.

Real Estate

Pension Trust

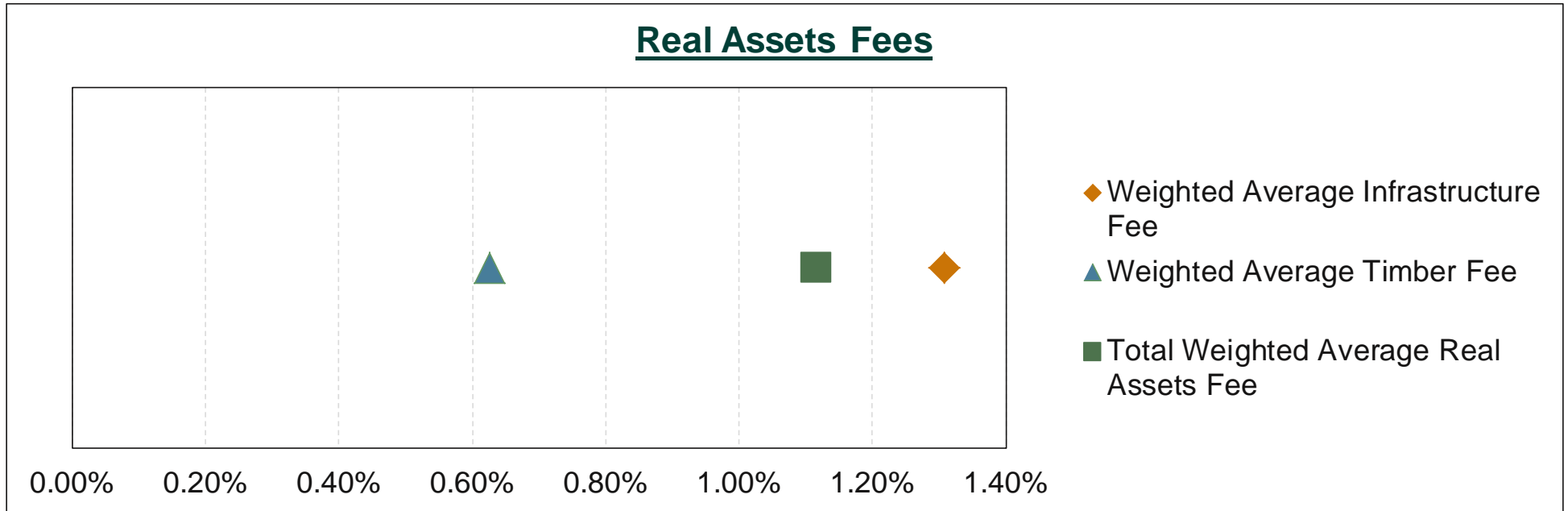
Real Estate	
Asset-Based Fee Strategies	Fee %
INVESCO Core Real Estate	0.34%
JP Morgan Special & Strategic	0.95%
Weighted Average Asset-Based Fee	0.61%
Performance and Hybrid Fee Strategies	Fee %
INVESCO Asia RE Fund III	5.56%
INVESCO Real Estate Fund III	0.00%
INVESCO Value Added Fund IV	0.74%
INVESCO Value Added Fund V	1.07%
JP Morgan Greater European Opp	0.30%
Weighted Average Performance and Hybrid Fee	2.07%
Total Weighted Average Real Estate Fee	0.79%
Industry Fee - 25th Percentile	0.84%
Industry Fee - Median	0.92%
Industry Fee - 75th Percentile	0.97%

N=66, Average of Actual Fee Universe (N=29) and Published Fee Universe (N=37)

- Due to the fee structure of the funds in the performance and hybrid fee strategies category, the total weighted average fees are not comparable to industry fees from Callan's 2019 Investment Management Fee Survey.

Real Assets

Pension Trust



- North Dakota Pension Trust's Real Assets encompass asset classes that typically provide some measure of inflation protection, often times including investments in tangible goods or resources.
- North Dakota Pension Trust's average Real Assets account size for FY 2020 was \$57mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 1.12%.
- The blue triangle represents the weighted average fee for all Timber assets: 0.63%.
- The orange diamond represents the weighted average fee for all Infrastructure assets: 1.12%.

Real Assets

Pension Trust

Real Assets	
Timber	Fee %
TIR - Teredo	0.56%
TIR - Springbank	0.65%
Weighted Average Timber Fee	0.63%
Infrastructure	Fee %
ISQ Global Infrastructure II	4.18%
JP Morgan Asian Infrastructure / Rohatyn	1.94%
JP Morgan Infrastructure Inv. Fund	0.78%
Grosvenor Infrastructure Fund I	0.58%
Grosvenor Infrastructure Fund II	1.12%
Macquarie Infrastructure Partners IV	1.46%
Weighted Average Infrastructure Fee	1.31%
Total Weighted Average Real Assets Fee	1.12%

- All managers in the North Dakota Pension Trust's Real Assets asset class charge an asset-based fee and charge a performance fee for performance exceeding a "preferred" return set by each fund.

Private Equity

Pension Trust

Private Equity	
Total Weighted Average Private Equity Fee	2.11%

- Due to a number of factors, such as maturity of the portfolio, point in the business cycle, and the highly varied and customized approach of Private Equity strategies, Callan cannot produce an informationally viable industry fee universe for comparison.
- At the end of fiscal year 2020 Private Equity accounted for 4.8% of Total Fund assets.
- The average Private Equity fund in the North Dakota Pension Trust had a net asset value of \$12mm during FY 2020, with total assets allocated to private equity of \$290mm as of June 30, 2020.
- Total asset class weighted average fee for FY 2020: 2.11%.
- Similar to the fiscal 2018 fee study, the management fees for NDSIB's private equity portfolio are at levels for similar strategies and are in line with industry norms.
- Note that the Adam's Street Direct Co-Investment only charged fees for the second quarter of the 2020 Fiscal Year. During the other quarters the Trust accrued a performance fee credit against future fees. For the purposes of this calculation, the fee charged by Adam's Street Direct Co-Investment was valued at zero.

Cash

Pension Trust

Cash & Equivalents	
Asset-Based Fee Strategies	Fee %
Bank of North Dakota Cash Account	0.00%
Northern Trust Cash Account	0.13%
Total Weighted Average Cash Equivalents Fee	0.10%

- The managers for this asset class fall into the asset-based fee category.
- Fees for cash management are typically below 20 basis points (0.20%) per annum. Fees paid by the North Dakota State Investment Board's Pension Trust for cash management are within industry norms.
- North Dakota's average Cash account size for FY 2020 was \$41mm.

Callan

Insurance Trust

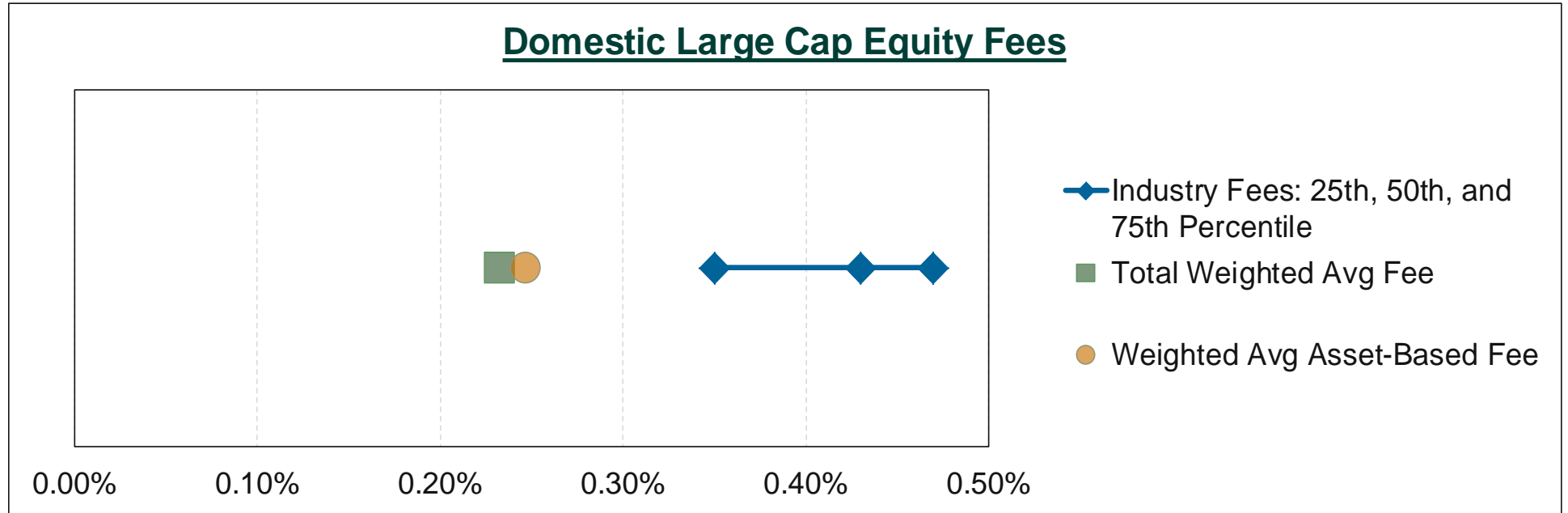
Insurance Trust

NDSIB Insurance Trust Fee Study Fiscal Year 2020 Executive Summary

- Total Insurance Trust Equity Manager fees paid represented a mix of asset-based and performance and hybrid fee strategies. In aggregate all equity strategy composites had fees below their respective 25th percentiles.
 - Total Domestic Large Cap Equity fees were below the 25th percentile of the industry fee universe.
 - Total Small Cap Equity fees were below the 25th percentile.
 - Total Developed International Equity fees were below the 25th percentile and represented only asset-based fee strategies.
- Total Insurance Trust Domestic Fixed Income manager fees paid represented a mix of asset-based and performance and hybrid fee strategies.
 - Total Domestic Fixed Income fees paid were at median, driven higher by performance and hybrid fee based strategies, while total asset-based fee strategies were below the 25th percentile.
- The Insurance Trust's Diversified Real Assets manager fees paid represented a mix of asset-based and performance and hybrid fee strategies spanning public and private markets. Total weighted average fees fell below the 25th percentile.
 - Due to the custom nature of non-core public strategies and their closed-end fund structures, the manager fee distribution may not be particularly applicable.
- The Insurance Trust's Total Real Estate manager fees paid represented asset-based fee strategies only.
 - Total Real Estate manager fees paid were below the 25th percentile.
- The Insurance Trust's Short-term Fixed Income manager fees paid represented asset-based fee strategies only.
 - Fees paid fell below the 25th percentile of the strategy universe.

Domestic Large Cap Equity

Insurance Trust



N=48, Actual Fee Universe

- North Dakota Insurance Trust's Domestic Large Cap Equity managers invest in large company stocks that are typically listed and traded within the U.S.
- North Dakota Insurance Trust's average Domestic Large Cap Equity account size for FY 2020 was \$60mm.
- The orange circle represents North Dakota Insurance Trust's Domestic Large Cap Equity weighted average asset-based management fee of 0.25%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.23%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$50mm and \$150mm.

Domestic Large Cap Equity

Insurance Trust

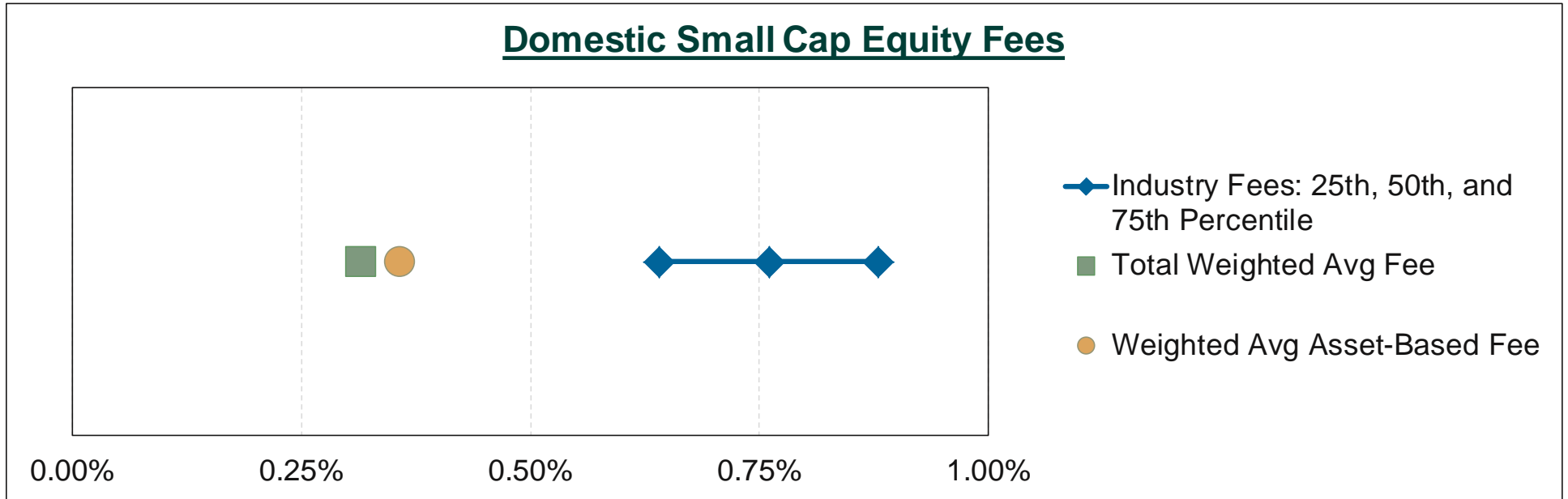
Domestic Large Cap Equity	
Asset-Based Fee Strategies	Fee %
L.A. Capital Growth	0.21%
LSV Large Cap Value	0.29%
Weighted Average Asset-Based Fee	0.25%
Performance and Hybrid Fee Strategies	Fee %
L.A. Capital Enhanced Index	0.42%
Parametric Large Cap	0.00%
Weighted Average Performance and Hybrid Fee	0.21%
Total Weighted Average U.S. Lg Cap Fee	0.23%
Industry Fee - 25th Percentile	0.35%
Industry Fee - Median	0.43%
Industry Fee - 75th Percentile	0.47%

N=48, Actual Fee Universe

- North Dakota Insurance Trust's Domestic Large Cap Equity Portfolio employs several managers with performance and hybrid fee structures and is therefore difficult to compare directly to industry averages.
 - L.A. Capital Enhanced Index charges a base management fee on all assets under management in addition to a performance based fee on a portion of the assets.
 - Parametric Clifton Enhanced Index charges no base management fee. The only fee charged is on the excess return generated. Fees are paid once a year for performance through June 30.

Domestic Small Cap Equity

Insurance Trust



N=119, Actual Fee Universe

- North Dakota Insurance Trust's Domestic Small Cap Equity managers invest in smaller company stocks that are typically listed and traded within the U.S.
- North Dakota Insurance Trust's average Domestic Small Cap Equity account size for FY 2020 was \$22mm.
- The orange circle represents North Dakota Insurance Trust's Domestic Small Cap Equity weighted average asset-based management fee of 0.36%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.31%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes below \$50mm.

Domestic Small Cap Equity

Insurance Trust

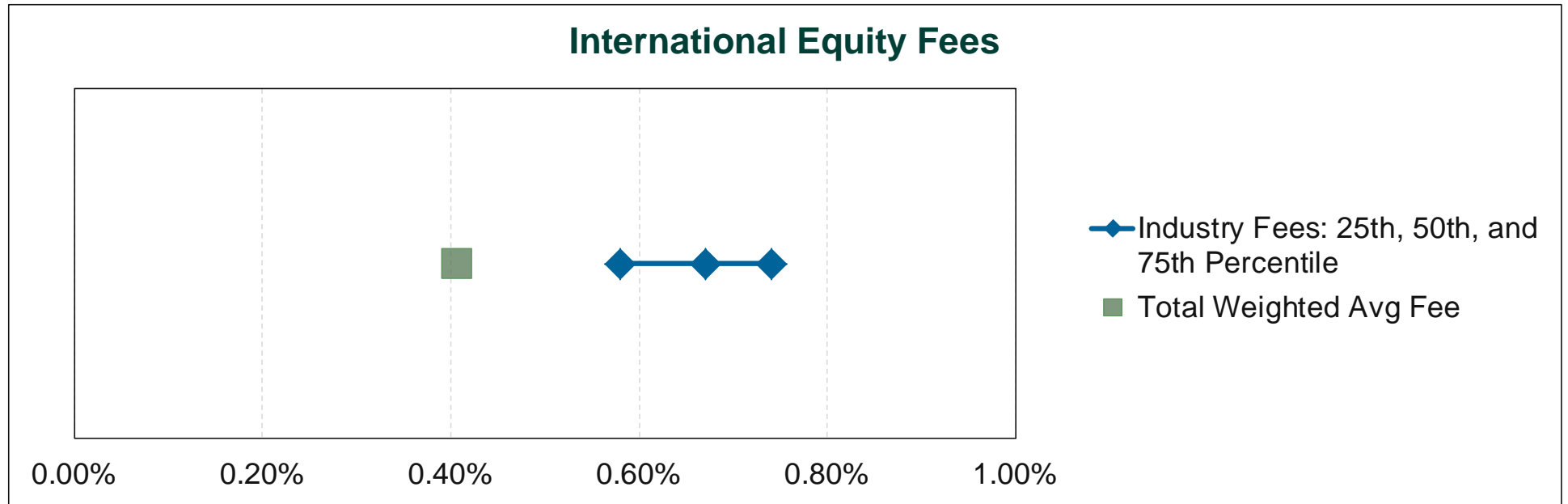
Domestic Small Cap Equity	
Asset-Based Fee Strategies	Fee %
PIMCO (Research Affiliates)	0.32%
Atlanta Capital	0.42%
Weighted Average Asset-Based Fee	0.36%
Performance and Hybrid Fee Strategies	Fee %
Parametric Small Cap	0.27%
Weighted Average Performance and Hybrid Fee	0.27%
Total Weighted Average U.S. Sm Cap Fee	0.31%
Industry Fee - 25th Percentile	0.64%
Industry Fee - Median	0.76%
Industry Fee - 75th Percentile	0.88%

N=119, Actual Fee Universe

- Due to the fee structure of the funds in the performance and hybrid fee strategies category, the total weighted average fees are not comparable to industry fees from Callan's 2019 Investment Management Fee Survey.
 - Parametric Clifton Small Cap Enhanced Index charges no base management fee. The only fee charged is on the excess return generated over the benchmark. Fees are paid once a year for performance through June 30.

International Equity

Insurance Trust



N=112, Actual Fee Universe

- North Dakota Insurance Trust's International Equity managers invest in stocks that trade and gain exposure to equity markets and economies outside of the U.S.
- North Dakota Insurance Trust's average International Equity account size for FY 2020 was \$43mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.41%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes below \$100mm.

International Equity

Insurance Trust

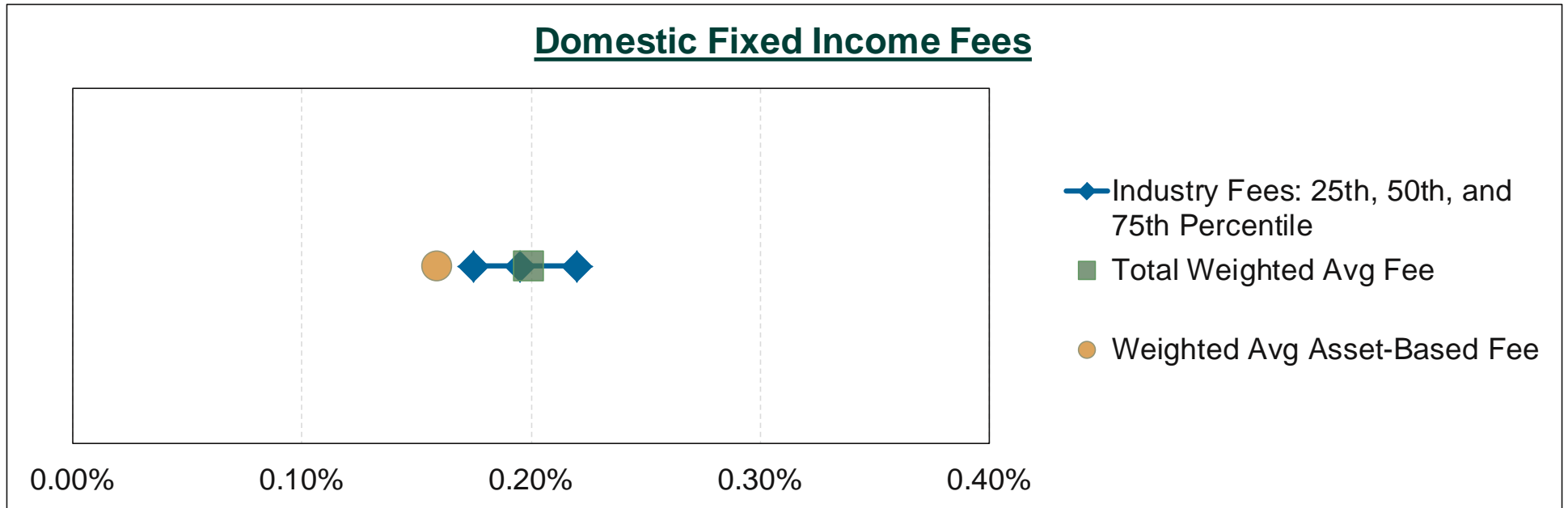
International Equity	
Asset-Based Fee Strategies	Fee %
DFA Int'l Small Cap	0.67%
LSV International Value	0.39%
Vanguard Int'l Explorer Fund	0.40%
William Blair	0.36%
Total Weighted Average Intl Equity Fee	0.41%
<hr/>	
Industry Fee - 25th Percentile	0.58%
Industry Fee - Median	0.67%
Industry Fee - 75th Percentile	0.74%

N=112, Actual Fee Universe

- All managers for this asset class fall into the asset-based fee category.

Domestic Fixed Income

Insurance Trust



N=106, Average of Actual Fee Universe (N=25) and Published Fee Universe (N=81)

- North Dakota Insurance Trust's Domestic Fixed Income managers invest in bonds and other debt instruments.
- North Dakota Insurance Trust's average Domestic Fixed Income account size for FY 2020 was \$164mm.
- The orange circle represents North Dakota Insurance Trust's Domestic Fixed Income weighted average asset-based management fee of 0.16%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.2%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Domestic Fixed Income

Insurance Trust

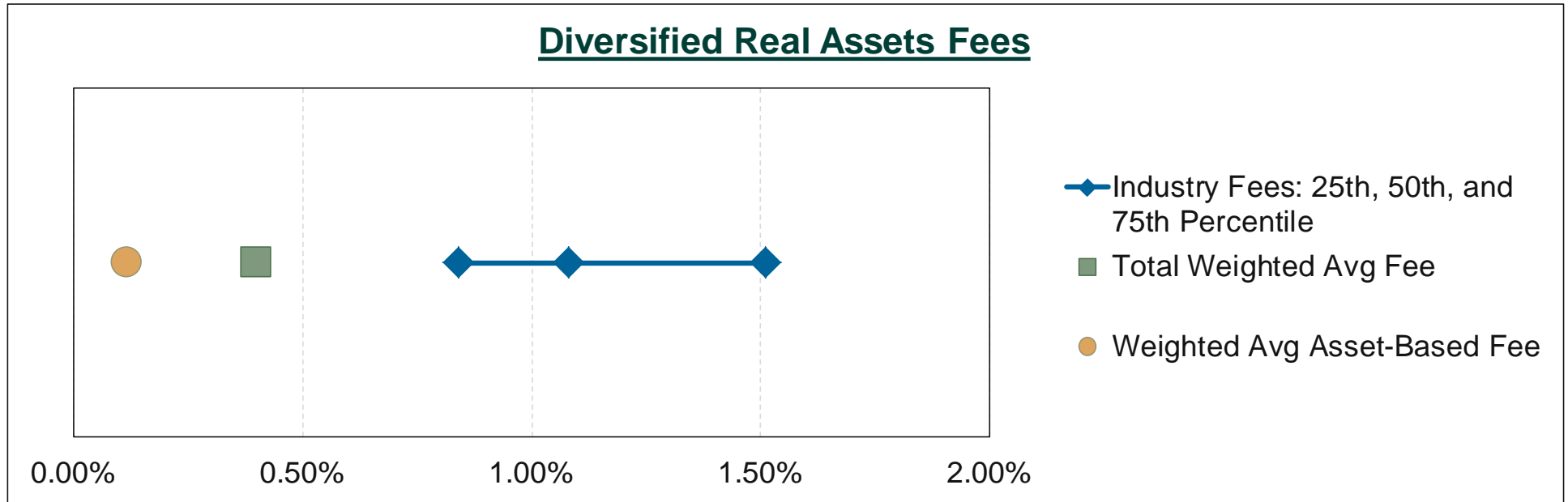
Domestic Fixed Income	
Asset-Based Fee Strategies	Fee %
Declaration Total Return	0.37%
Prudential	0.21%
SSgA U.S. Govt Credit Bond Index	0.01%
Wells Capital	0.19%
Western Asset Management	0.12%
Weighted Average Asset-Based Fee	0.16%
Performance and Hybrid Fee Strategies	Fee %
PIMCO Core Plus Constrained	0.21%
PIMCO DiSCO II	1.19%
PIMCO Bravo II	0.00%
Weighted Average Performance and Hybrid Fee	0.39%
Total Weighted Average U.S. Fixed Income Fee	0.20%
Industry Fee - 25th Percentile	0.18%
Industry Fee - Median	0.20%
Industry Fee - 75th Percentile	0.22%

N=106, Average of Actual Fee Universe (N=25) and Published Fee Universe (N=81)

- North Dakota Insurance Trust's Domestic Fixed Income portfolio employs both asset-based fee strategies and performance and hybrid strategies.
- The portfolio's total weighted average fees are at the peer median.

Diversified Real Assets

Insurance Trust



N=96, Published: Callan's Diversified Real Assets Peer Group

- North Dakota Insurance Trust's Diversified Real Assets managers invest in assets that are expected to perform well during periods of inflation.
- North Dakota Insurance Trust's average Diversified Real Assets account size for FY 2020 was \$63mm.
- The orange circle represents North Dakota Insurance Trust's Diversified Real Assets weighted average asset-based management fee of 0.12%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.4%.
- Fee universe was constructed using Callan's Diversified Real Assets Peer Group of 96 investment manager constituents.

Diversified Real Assets

Insurance Trust

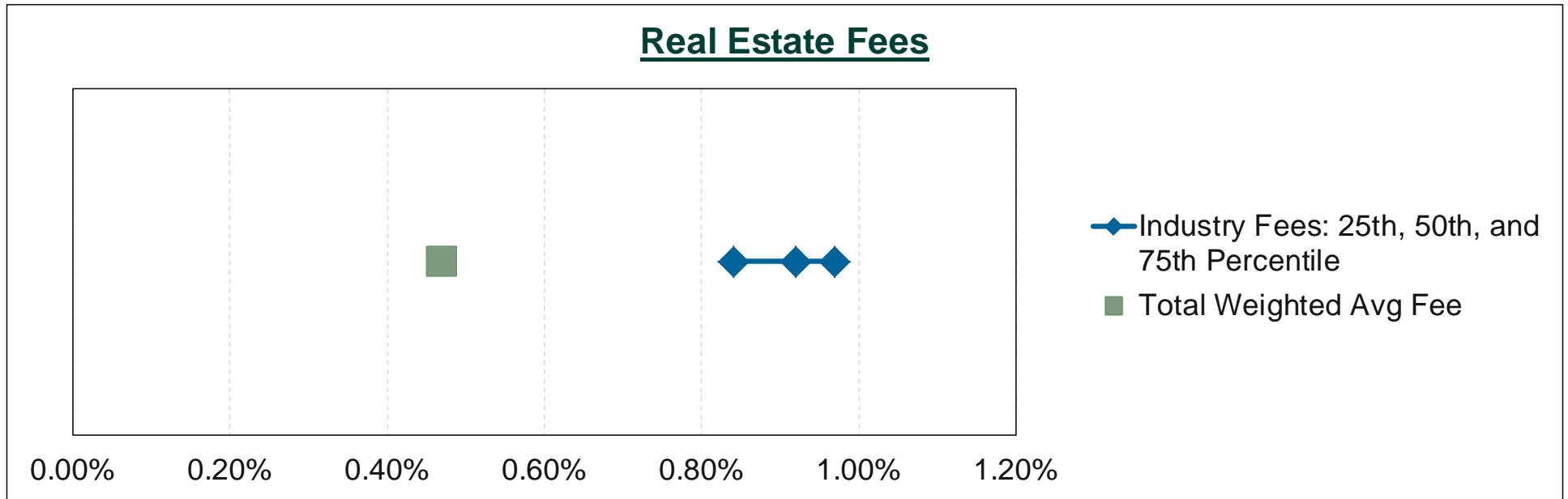
Diversified Real Assets	
Asset-Based Fee Strategies	Fee %
Western Asset Management TIPS	0.12%
Weighted Average Asset-Based Fee	0.12%
Performance and Hybrid Fee Strategies	Fee %
JP Morgan Infrastructure Inv. Fund	0.76%
TIR - Eastern Timber Opportunities	0.83%
Grosvenor Infrastructure Fund I	0.58%
Weighted Average Performance and Hybrid Fee	0.77%
Total Weighted Average Real Assets Fee	0.40%
Industry Fee - 25th Percentile	0.84%
Industry Fee - Median	1.08%
Industry Fee - 75th Percentile	1.51%

N=96, Published: Callan's Diversified Real Assets Peer Group

- JP Morgan Infrastructure Fund, Grosvenor Infrastructure Fund I, and TIR Eastern Timber Opportunities Fund all charge a base management fee on assets and a performance fee for performance exceeding a “preferred” return set by each fund.
- Note that the Callan Diversified Real Assets Peer Group is a universe of 96 managers that invest in publicly traded securities and is not reflective of the private infrastructure and timber peer universes.

Real Estate

Insurance Trust



N=66, Average of Actual Fee Universe (N=29) and Published Fee Universe (N=37)

- North Dakota Insurance Trust's Real Estate managers invest directly in real properties (e.g. offices, multi-family, retail, and other physical properties) and securities that gain access to such economic interests.
- North Dakota Insurance Trust's average Real Estate account size for FY 2020 was \$50mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.47%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$50mm and \$150mm.

Real Estate

Insurance Trust

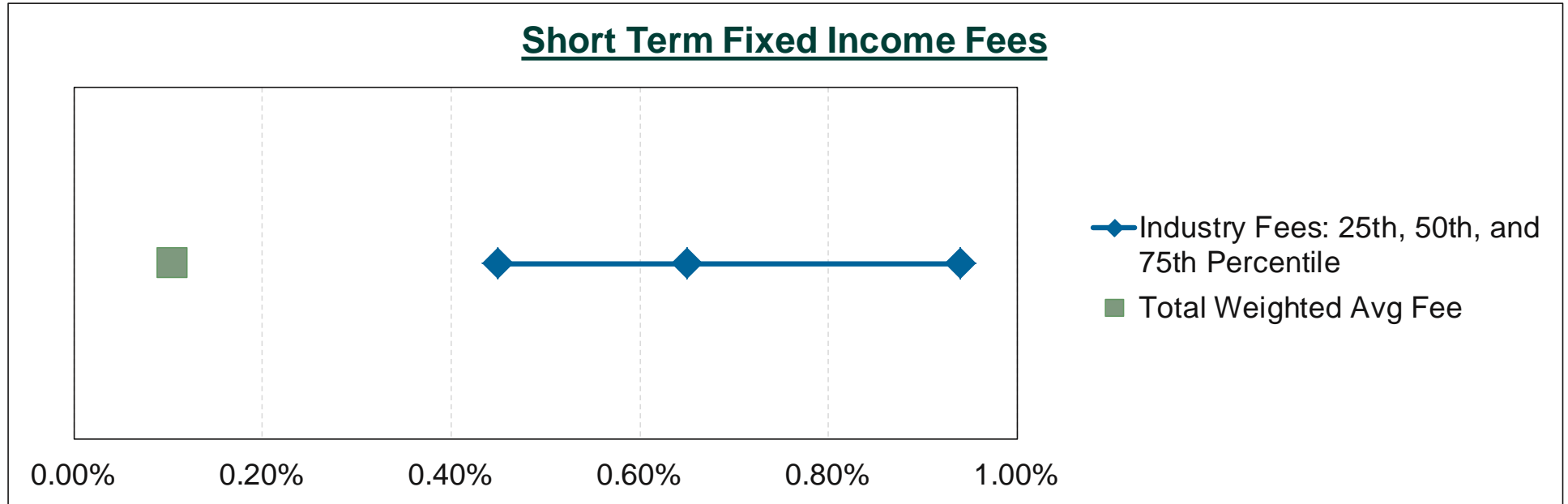
Real Estate	
Asset-Based Fee Strategies	Fee %
Invesco Core Real Estate	0.34%
JP Morgan RE Income & Growth	0.61%
Total Weighted Average Real Estate Fee	0.47%
<hr/>	
Industry Fee - 25th Percentile	0.84%
Industry Fee - Median	0.92%
Industry Fee - 75th Percentile	0.97%

N=66, Average of Actual Fee Universe (N=29) and Published Fee Universe (N=37)

- All managers for this asset class fall into the asset-based fee category.

Short Term Fixed Income

Insurance Trust



N=557, Published: Callan's Short Investment Grade Bond Mutual Funds Peer Group

- North Dakota Insurance Trust's Short Term Fixed Income managers invest in bonds that have short maturity dates.
- North Dakota Insurance Trust's average Short Term Fixed Income account size for FY 2020 was \$357mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.1%.
- The fee universe was constructed using Callan's Short Investment Grade Bond Mutual Funds Peer Group of 557 investment manager constituents.

Short Term Fixed Income and Cash

Insurance Trust

Short Term Fixed Income	
Asset-Based Fee Strategies	Fee %
Barings Active Short Duration	0.11%
JPM Short Term Bonds	0.10%
Total Weighted Average ST Fixed Income Fee	0.10%
<hr/>	
Industry Fee - 25th Percentile	0.45%
Industry Fee - Median	0.65%
Industry Fee - 75th Percentile	0.94%

N=557, Published: Callan's Short Investment Grade Bond Mutual Funds Peer Group

Cash & Equivalents	
Asset-Based Fee Strategies	Fee %
Bank of North Dakota Cash Account	0.00%
Northern Trust Cash Account	0.19%
Total Weighted Average Cash Equivalents Fee	0.10%

- All managers for these asset classes fall into the asset-based fee category.
- North Dakota Insurance Trust's average Cash account size for FY 2020 was \$22mm.
- Fees for cash management are typically below 20 basis points (0.20%). Fees paid by the North Dakota State Investment Board's Insurance Trust cash and short-term fixed income management are within industry norms.

Callan

Legacy Fund

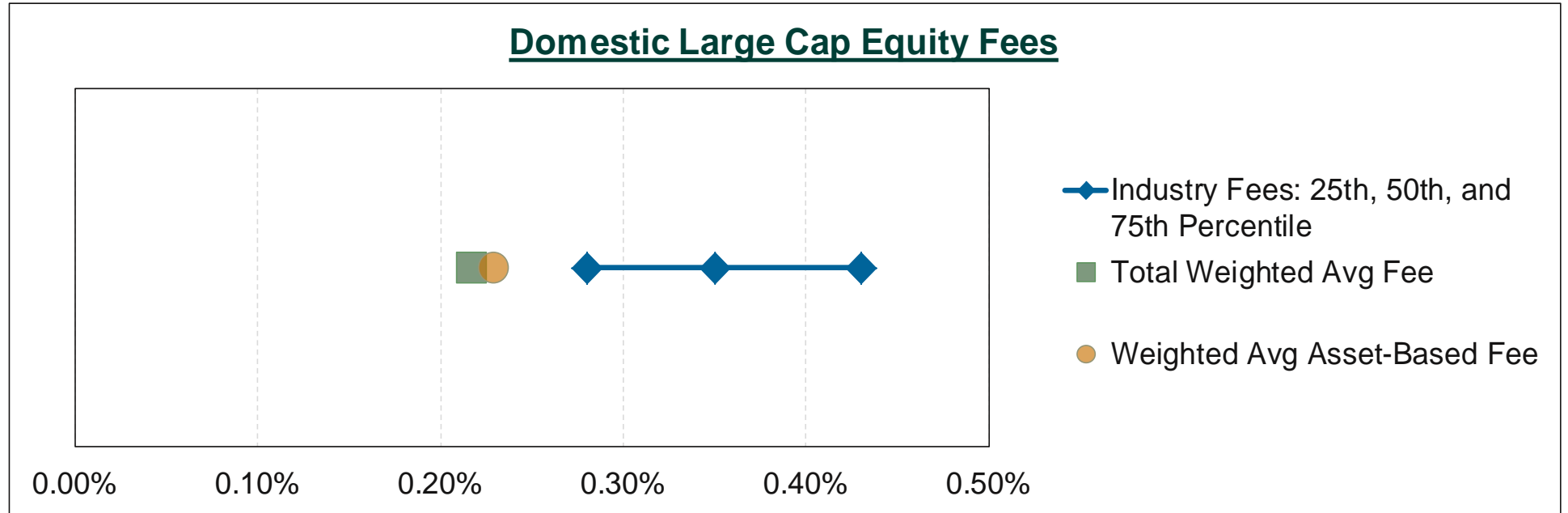
Legacy Fund

NDSIB Legacy Fund Fee Study Fiscal Year 2020 Executive Summary

- The Legacy Fund's Total Equity manager fees paid represented a mix of asset-based and performance and hybrid fee strategies.
 - Total Domestic Large Cap Equity fees were below the 25th percentile of industry fees.
 - Total Small Cap Equity fees were below the 25th percentile.
 - International Equity fees fell within second quartile among peers and represented only asset-based fee strategies.
- The Legacy Fund's Total Domestic Fixed Income manager fees paid represented both asset-based and performance and hybrid fee strategies.
 - Total Domestic Fixed Income fees paid were above the 75th percentile of industry fees. This was largely due to the impact of performance-based fee schedules. Asset based fees paid by the trust were below the 25th percentile of industry fees.
- The Legacy Fund's Diversified Real Assets manager fees paid represented a mix of asset-based and performance and hybrid fee strategies spanning public and private markets. Asset based fee strategies fell below the 25th percentile, with performance and hybrid fee strategies pushing the total fees paid higher, but still below the 25th percentile.
 - Due to the custom nature of the private strategies and their closed-end fund structures, there is no applicable manager fee distribution and so it presents a skew to the asset-based fee universe for the comparison.
- The Legacy Fund's Total Real Estate manager fees paid represented asset-based fee strategies only.
 - Total Real Estate manager fees paid were below the 25th percentile.

Domestic Large Cap Equity

Legacy Fund



N=43, Actual Fee Universe

- North Dakota Legacy Fund's Domestic Large Cap Equity managers invest in large company stocks that are typically listed and traded within the U.S.
- North Dakota's average Domestic Large Cap Equity account size for FY 2020 was \$353mm.
- The orange circle represents North Dakota's Domestic Large Cap Equity weighted average asset-based management fee of 0.23%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.22%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Domestic Large Cap Equity

Legacy Fund

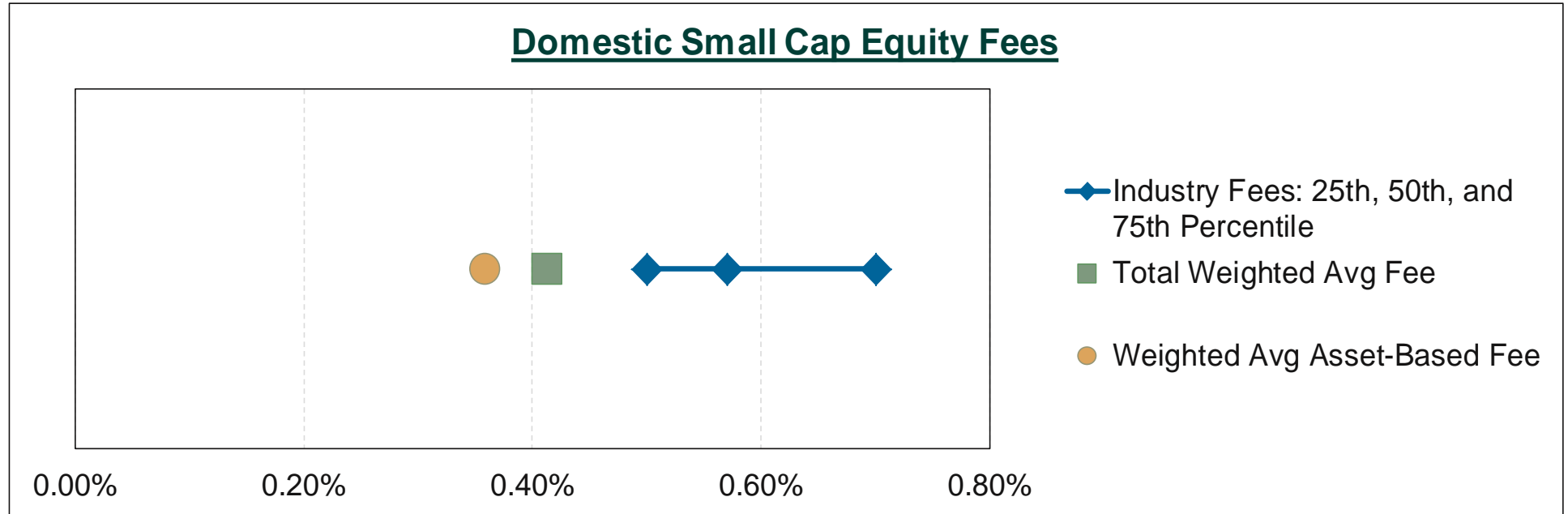
Domestic Large Cap Equity	
Asset-Based Fee Strategies	Fee %
L.A. Capital Growth	0.18%
LSV Large Cap Value	0.29%
Weighted Average Asset-Based Fee	0.23%
Performance and Hybrid Fee Strategies	Fee %
L.A. Capital Enhanced Index	0.39%
Parametric Large Cap	0.00%
Weighted Average Performance and Hybrid Fee	0.20%
Total Weighted Average U.S. Lg Cap Fee	0.22%
Industry Fee - 25th Percentile	0.28%
Industry Fee - Median	0.35%
Industry Fee - 75th Percentile	0.43%

N=43, Actual Fee Universe

- The Domestic Large Cap Equity Portfolio employs several managers with performance and hybrid fee structures and is therefore difficult to compare directly to industry averages.
 - L.A. Capital Enhanced Index charges a base management fee on all assets under management in addition to a performance based fee on a portion of the assets.
 - Parametric Clifton Enhanced Index charges no base management fee. The only fee charged is on the excess return generated. Fees are paid once a year for performance through June 30.

Domestic Small Cap Equity

Legacy Fund



N=46, Actual Fee Universe

- North Dakota Legacy Fund's Domestic Small Cap Equity managers invest in smaller company stocks that are typically listed and traded within the U.S..
- North Dakota Legacy Fund's average Domestic Small Cap Equity account size for FY 2020 was \$167mm.
- The orange circle represents North Dakota Legacy Fund's Domestic Small Cap Equity weighted average asset-based management fee of 0.36%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.41%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Domestic Small Cap Equity

Legacy Fund

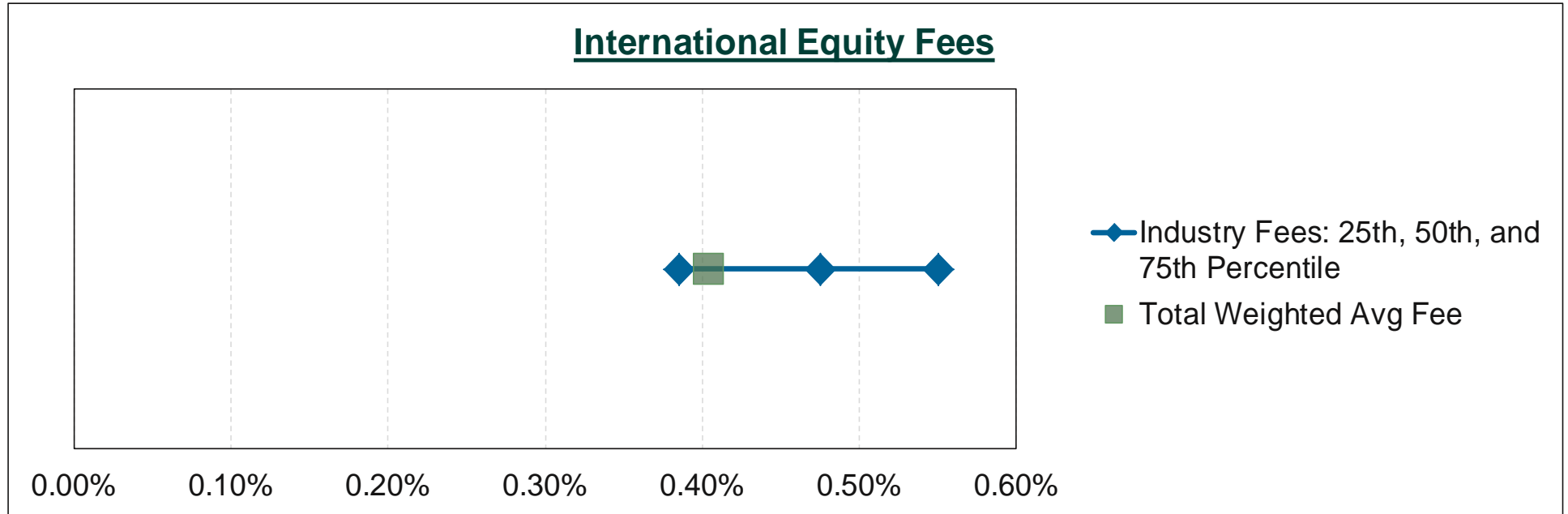
Domestic Small Cap Equity	
Asset-Based Fee Strategies	Fee %
Atlanta Capital	0.43%
PIMCO (Research Affiliates)	0.31%
Weighted Average Asset-Based Fee	0.36%
Performance and Hybrid Fee Strategies	Fee %
Parametric Small Cap	0.46%
Weighted Average Performance and Hybrid Fee	0.46%
Total Weighted Average U.S. Sm Cap Fee	0.41%
Industry Fee - 25th Percentile	0.50%
Industry Fee - Median	0.57%
Industry Fee - 75th Percentile	0.70%

N=46, Actual Fee Universe

- Due to the fee structure of the funds in the performance and hybrid fee strategies category, the total weighted average fees are not comparable to industry fees from Callan's 2019 Investment Management Fee Survey.
 - Parametric Clifton Small Cap Enhanced Index charges no base management fee. The only fee charged is on the excess return generated over the benchmark. Fees are paid once a year for performance through June 30.

International Equity

Legacy Fund



N=203, Average of Actual Fee Universe (N=27) & Published Fee Universe (N=176)

- North Dakota Legacy Fund's International Equity managers invest in stocks that trade and gain exposure to developed markets and economies outside of the U.S.
- North Dakota Legacy Fund's average International Equity account size for FY 2020 was \$319mm.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.4%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$300mm and \$600mm.

International Equity

Legacy Fund

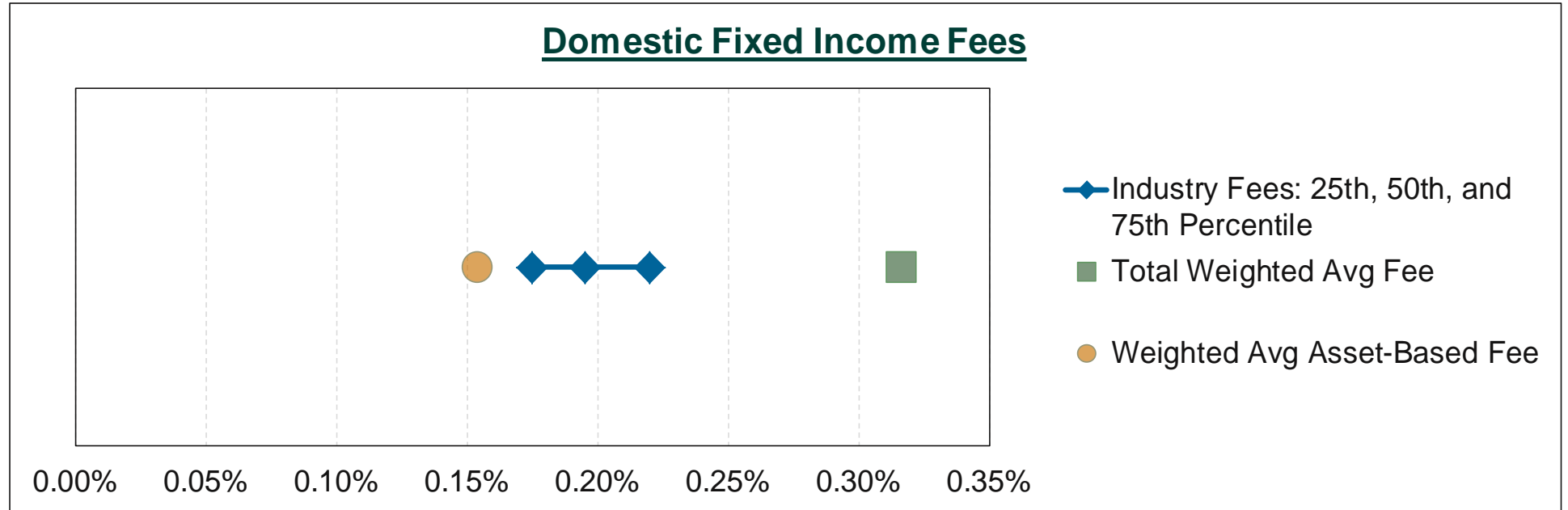
International Equity	
Asset-Based Fee Strategies	Fee %
LSV International Value	0.39%
DFA Int'l Small Cap	0.66%
William Blair	0.36%
Vanguard Int'l Explorer Fund	0.39%
Total Weighted Average Intl Equity Fee	0.40%
<hr/>	
Industry Fee - 25th Percentile	0.39%
Industry Fee - Median	0.48%
Industry Fee - 75th Percentile	0.55%

N=203, Average of Actual Fee Universe (N=27) & Published Fee Universe (N=176)

- All managers for this asset class fall into the asset-based fee category.

Domestic Fixed Income

Legacy Fund



N=106, Average of Actual Fee Universe (N=25) & Published Fee Universe (N=81)

- North Dakota Legacy Fund's Domestic Fixed Income managers invest in bonds and other debt instruments.
- North Dakota Legacy Fund's average Domestic Fixed Income account size for FY 2020 was \$236mm.
- The orange circle represents North Dakota Legacy Fund's Domestic Fixed Income weighted average asset-based management fee of 0.15%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.32%.
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$150mm and \$300mm.

Domestic Fixed Income

Legacy Fund

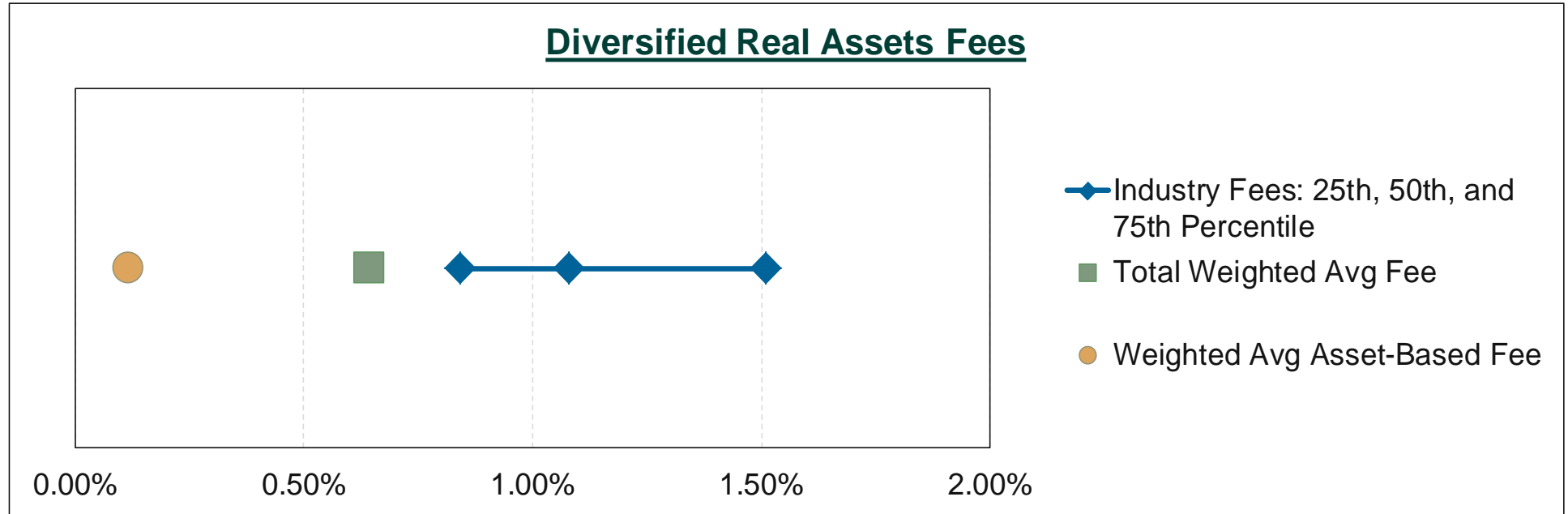
Domestic Fixed Income	
Asset-Based Fee Strategies	Fee %
Declaration Total Return	0.37%
Prudential	0.21%
SSgA U.S. Govt Credit Bond Index	0.01%
Wells Capital	0.19%
Western Asset Management	0.12%
Bank of North Dakota CDs	0.00%
Weighted Average Asset-Based Fee	0.15%
Performance and Hybrid Fee Strategies	Fee %
Cerberus Private Credit	2.79%
PIMCO DiSCO II	1.18%
PIMCO Bravo II	0.00%
Ares Credit Strategies	1.60%
Weighted Average Performance and Hybrid Fee	1.91%
Total Weighted Average U.S. Fixed Income Fee	0.32%
Industry Fee - 25th Percentile	0.18%
Industry Fee - Median	0.20%
Industry Fee - 75th Percentile	0.22%

N=106, Average of Actual Fee Universe (N=25) & Published Fee Universe (N=81)

- Asset-based fee strategies fall below the 25th percentile of the peer universe, while performance and hybrid fee structures push the total weighted average fee above the 75th percentile.

Diversified Real Assets

Legacy Fund



N=96, Published: Callan's Diversified Real Assets Peer Group

- North Dakota Legacy Fund's Diversified Real Assets managers invest in assets that are expected to perform well during periods of inflation.
- North Dakota Legacy Fund's average Diversified Real Assets account size for FY 2020 was \$137mm.
- The orange circle represents North Dakota Legacy Fund's Diversified Real Assets weighted average asset-based management fee of 0.12%.
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.64%.
- Fee universe was constructed using Callan's Diversified Real Assets Peer Group of 96 investment manager constituents.

Diversified Real Assets

Legacy Fund

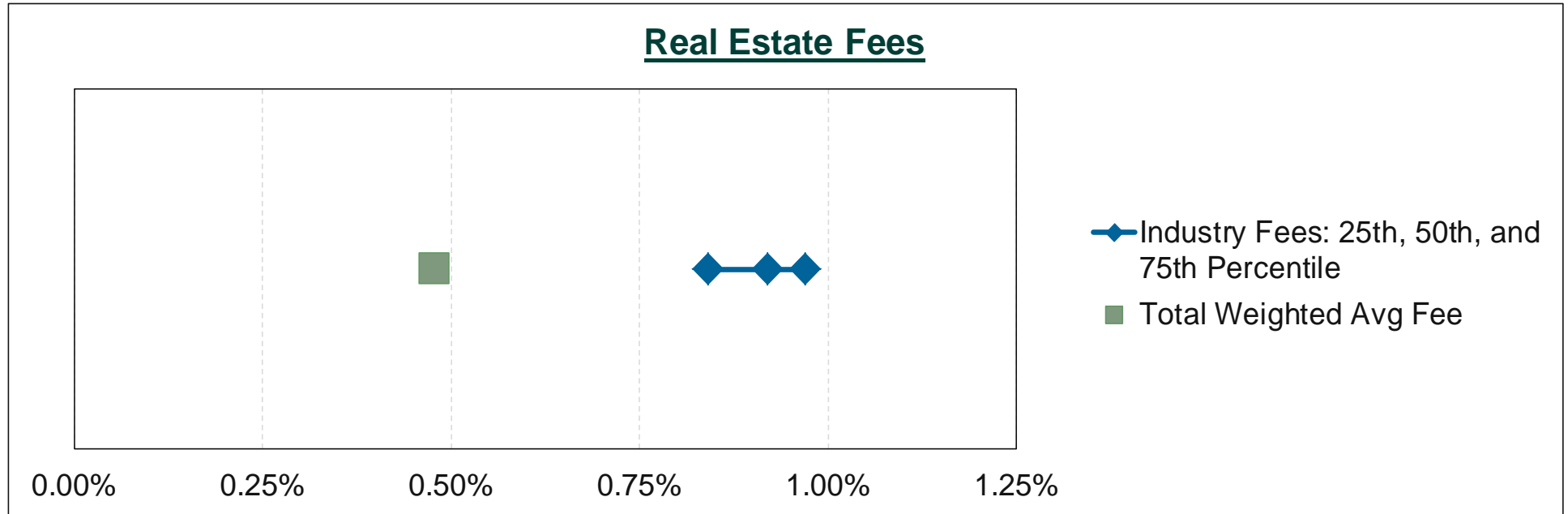
Diversified Real Assets	
Asset-Based Fee Strategies	Fee %
Western Asset Management TIPS	0.12%
Weighted Average Asset-Based Fee	0.12%
Performance and Hybrid Fee Strategies	Fee %
ISQ Global Infrastructure II	4.18%
JP Morgan Infrastructure Inv. Fund	0.80%
Grosvenor Infrastructure Fund II	1.05%
Macquarie Infrastructure Partners IV	1.46%
Weighted Average Performance and Hybrid Fee	1.50%
Total Weighted Average Real Assets Fee	0.64%
Industry Fee - 25th Percentile	0.84%
Industry Fee - Median	1.08%
Industry Fee - 75th Percentile	1.51%

N=96, Published: Callan's Diversified Real Assets Peer Group

- The North Dakota Legacy Fund's Diversified Real Assets portfolio is comprised of one Treasury Inflation-Protected Securities manager and four infrastructure funds.
- Collectively, the portfolio's total weighted average fee is in the top quartile among the peer universe.
- Note that the Callan Diversified Real Assets Peer Group is a universe of 96 managers that invest in publicly traded securities and is not reflective of the private infrastructure peer universe.

Real Estate

Legacy Fund



N=66, Average of Actual Fee Universe (N=29) & Published Fee Universe (N=37)

- North Dakota Legacy Fund's Real Estate managers invest directly in real properties (e.g. offices, multi-family, retail, and other physical properties) and securities that gain access to such economic interests.
- North Dakota Legacy Fund's average Real Estate account size for FY 2020 was \$150mm
- The green box represents total asset class weighted average fee (asset based & performance and hybrid fees) in FY 2020: 0.48%
- Fee universe was constructed using Callan's 2019 Investment Management Fee Survey for mandate sizes between \$50mm and \$150mm

Real Estate

Legacy Fund

Real Estate	
Asset-Based Fee Strategies	Fee %
Invesco Core Real Estate	0.34%
JP Morgan RE Income & Growth	0.61%
Total Weighted Average Real Estate Fee	0.48%
<hr/>	
Industry Fee - 25th Percentile	0.84%
Industry Fee - Median	0.92%
Industry Fee - 75th Percentile	0.97%

N=66, Average of Actual Fee Universe (N=29) & Published Fee Universe (N=37)

- All managers for this asset class fall into the asset-based fee category.

Cash

Legacy Fund

Cash & Equivalents	
Asset-Based Fee Strategies	Fee %
Bank of North Dakota Cash Account	0.00%
Northern Trust Cash Account	0.18%
Total Weighted Average Cash Equivalents Fee	0.11%

- The managers for this asset class fall into the asset-based fee category.
- North Dakota Legacy Fund's average Cash account size for FY 2020 was \$31mm.
- Fees for cash management are typically below 20 basis points (0.20%). Fees paid by the North Dakota State Investment Board's Legacy Fund cash management are within industry norms.

Notes and Comments Regarding Report Measurements

NDSIB – Pension Trust, Insurance Trust, and Legacy Fund

- All market values, fee data and other information is as of the fiscal year ending June 30, 2020.
- Fee data was provided by NDSIB; no audit of the fees paid by NDSIB was conducted.
- Average account sizes are measured by using the balances at quarter-end for each quarter in the fiscal year 2020. To calculate the average value during the course of the fiscal year, the quarter-end assets for all four quarters were added together and divided by four.
 - In some cases, an account's value changed significantly during the fiscal year due to external capital flows. These flows, especially when occurring intra-quarter, can skew some calculations.
- Fees charged by investment managers who did not have assets under management for the entire fiscal year are included in this study.
- Investment managers employ three primary fee calculation methods to charge for their services; **Asset-based fees**, **Performance-based fees**, or **Hybrid fees**. Regardless of the method used by a particular manager, Callan has calculated fees as a percentage of assets under management for each manager for the purposes of comparison.
- There are instances where managers provide fee credits (due to underperformance within a performance-based fee structure or due to unique fee structures). In some scenarios, a manager may provide more credits in a given year than it collects in total fees. In these instances where a manager's total fee (combining both management and performance) was below zero for the fiscal year, a floor of zero was set for the purposes of these calculations.
 - In the 2020 fiscal year the following managers provided a net fee credit: Parametric Large Cap (Pension Trust, Insurance Trust, and Legacy Fund), Adam's Street Direct Co-Investment (Pension Trust), PIMCO Bravo II (Pension Trust, Insurance Trust, and Legacy Fund), and Invesco Real Estate Fund III (Pension Trust).
- In many instances, fees paid by the individual trusts benefit from fee schedules that account for the aggregate level of assets invested with a particular manager or in a specific strategy.

Notes and Comments Regarding Report Measurements (continued)

NDSIB – Pension Trust, Insurance Trust, and Legacy Fund

- Fee universes used in the study reflect either **Actual Fees** paid by Callan clients in similar mandates, fees calculated using a universe of **Published Fees** representing manager fee schedules for similar mandates, or an Average of **Actual and Published Fee** universes where the actual fee universe was smaller than 30. All fee universes are explicitly noted beneath each chart where “n=” will denote the applicable sample size.
- Note: All three plans (Pension Trust, Insurance Trust, and Legacy Fund) employed Parametric to deploy a tactical overlay strategy in the fourth fiscal quarter of the year. Each plan had exposure in the U.S. Large Cap Equity, International Equity, and Fixed Income asset class sleeves. This manager is not explicitly presented in each of the asset class tables in the report due to its short tenure and low asset levels, but the fees paid to the manager are included in the total weighted average fee calculation of each asset class. Below is a breakout of the total fees paid to parametric in each asset class, for each Plan, as a percentage of total fees paid for each asset class:

Pension Trust:

– U.S. Large Cap Equity:	0.46%
– Developed International Equity:	0.68%
– Investment Grade Fixed Income:	0.74%

Insurance Trust:

– U.S. Large Cap Equity:	0.81%
– International Equity:	0.38%
– U.S. Fixed Income:	0.25%

Legacy Fund:

– U.S. Large Cap Equity:	0.66%
– International Equity:	0.28%
– U.S. Fixed Income:	0.42%