

Assumptions and Constraints

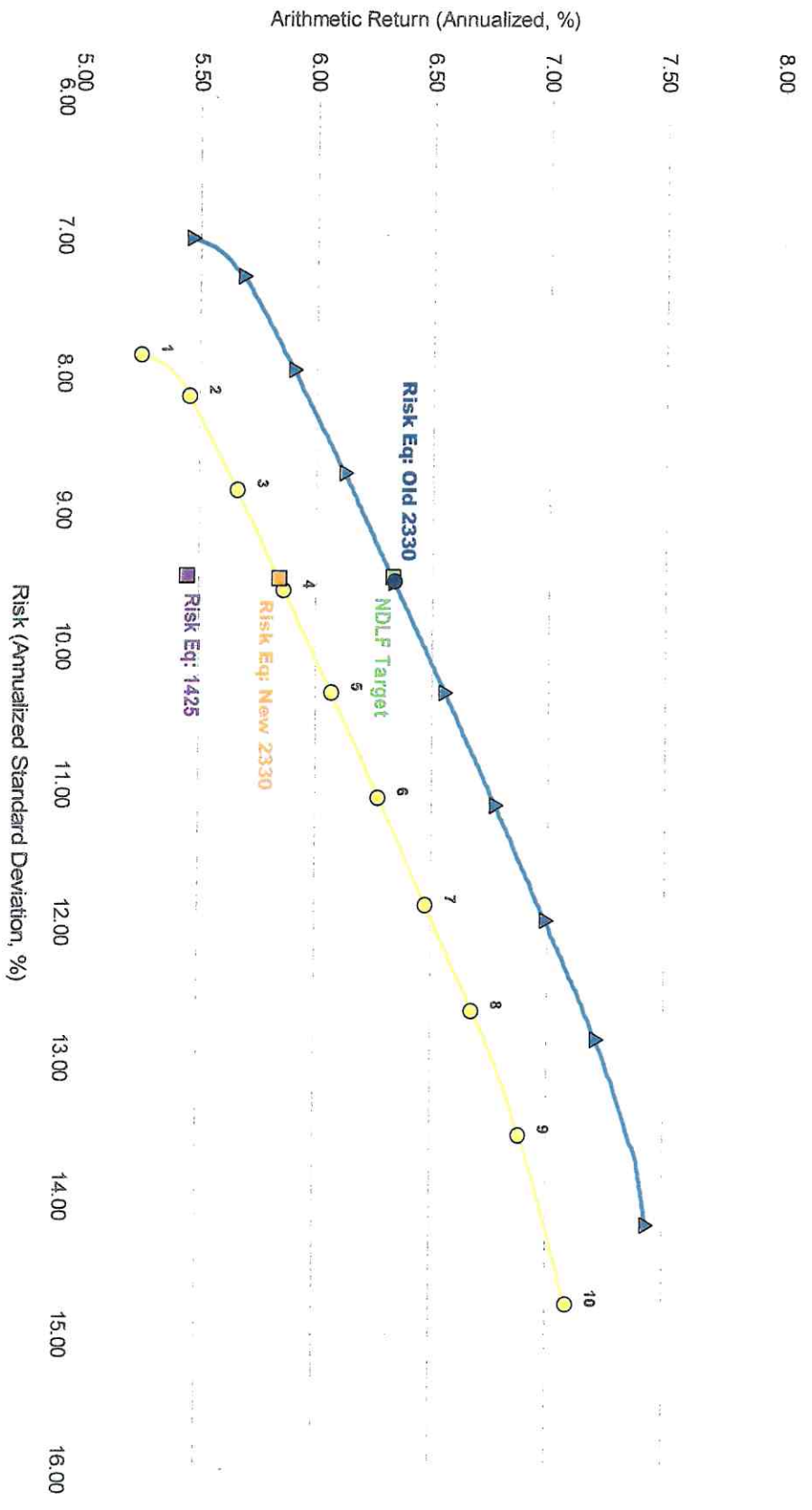
- For purposes of this analysis, we developed preliminary assumptions regarding the return and risk profile of the various potential forms of in-state investment as described in HB 1425.
 - Private Equity: returns = 50% of similar traditional investments; risk = 150% of similar traditional investments.
 - Infrastructure Loan: returns = 1.5% as defined in 1425; risk = RVK's private credit assumption.
 - Bank of North Dakota CD Match: returns and risk = 10-year Treasury Bonds.
- Additional Assumptions and Constraints:
 - Non-US equity cannot exceed US equity.
 - Illiquid assets cannot exceed 25%.
- On each frontier we showed the following portfolios:
 - Current North Dakota Legacy Fund ("NDLF") target allocation.
 - The following model portfolios with the same risk profile as the current Legacy Fund target:
 - "Risk Eq: 1425": from the frontier specific for the 1425 bill
 - "Risk Eq: Old 2330": from the frontier specific for the 2330 bill language prior to April 11 amendments
 - "Risk Eq: New 2330": from the frontier specific for the "new" 2330 bill, amended on April 11th as follows. For modeling purposes, this portfolio assumes immediate implementation of the below:
 - \$150 M is invested in the infrastructure revolving loan program;
 - \$550 M is invested in the BND match loan program;
 - \$600 M is invested in the in-state equity allocation;
 - No additional future additions to these allocations.

Efficient Frontier: New, Amended HB2330

	Min	Max	1	2	3	4	5	6	7	8	9	10	NDLF Target	Risk Eq: 1425	Risk Eq: Old 2330	Risk Eq: New 2330
Broad US Equity	10	40	18	14	17	19	22	24	27	29	33	35	30	20	21	19
Broad International Equity	10	30	10	14	17	19	22	24	27	29	30	30	20	14	21	19
Private Equity	0	12	0	0	0	0	0	0	0	0	4	9	1	0	3	0
In-State Private Equity	7.5	7.5	8	8	8	8	8	8	8	8	8	8	0	10	3	8
US Agg Fixed Income	10	40	40	40	40	36	31	26	21	16	12	10	29	36	34	37
Private Credit	0	10	0	4	4	4	4	4	4	4	0	0	3	0	8	4
BND CD Match	7	7	7	7	7	7	7	7	7	7	7	7	2	6	6	7
Infrastructure Loans	2	2	2	2	2	2	2	2	2	2	2	2	0	4	0	2
TIPS	0	7	7	6	1	0	0	0	0	0	0	0	5	5	0	0
Private Core Infrastructure	0	5	5	5	5	5	5	5	5	5	5	0	5	5	5	5
Core Real Estate	0	10	4	0	0	0	0	0	0	0	0	0	5	0	0	0
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Capital Appreciation	36	40	40	45	50	55	60	60	65	70	74	81	54	44	55	49
Capital Preservation	49	49	49	49	45	40	35	30	30	25	21	19	31	46	40	46
Alpha	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Inflation	16	11	6	5	5	5	5	5	5	5	5	0	15	10	5	5
Expected Arithmetic Return	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.1	7.1	6.3	5.5	6.3	5.9
Expected Risk (Standard Deviation)	7.9	8.2	8.9	9.6	10.3	11.1	11.9	12.7	13.6	14.8	9.5	9.5	9.5	9.5	9.5	9.5
Expected Compound Return	5.0	5.2	5.3	5.5	5.6	5.7	5.8	6.0	6.0	6.1	6.1	6.1	5.9	5.1	5.9	5.5
Expected Return (Arithmetic)/Risk Ratio	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.7	0.6	0.7	0.6
RVK Expected Eq Beta (LCUS Eq = 1)	0.4	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.9	0.6	0.5	0.6	0.5
RVK Liquidity Metric (T-Bills = 100)	70	69	69	69	69	69	70	70	70	70	71	70	79	69	69	68



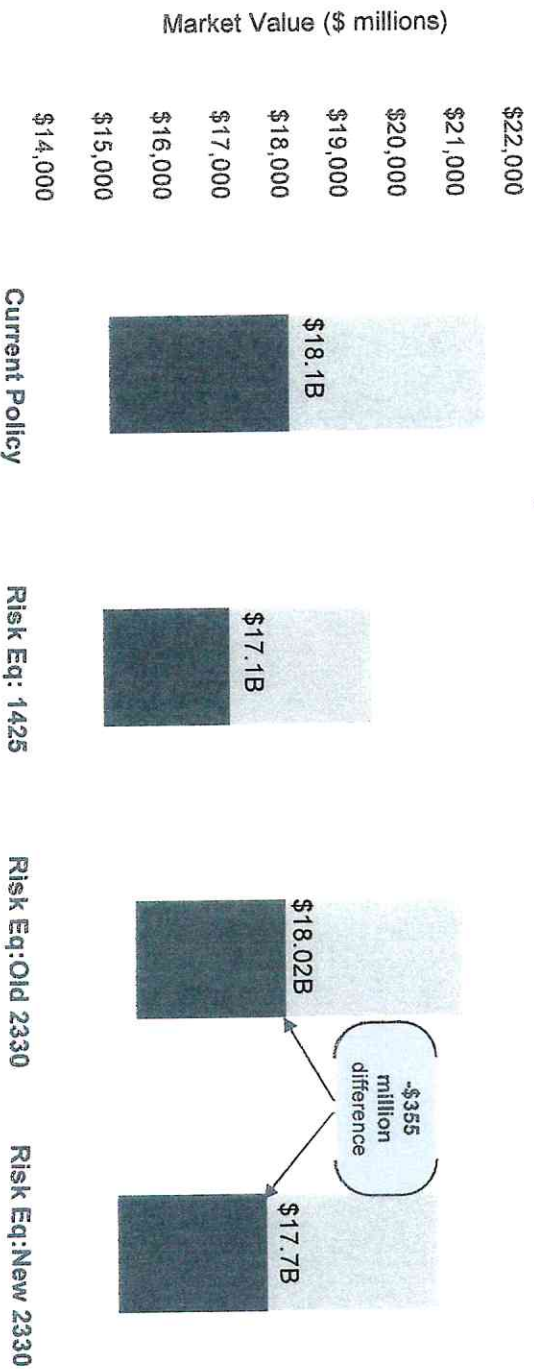
Efficient Frontier: New, Amended HB2330



Estimated Wealth Implications

- We modeled the potential range of wealth values over the next 10 years using the risk and return characteristics of the risk equivalent portfolios for the HB1425, "Old" HB2330 and "New" HB 2330 with the following assumptions:
 - Starting market value of \$7.95 billion for the entire portfolio.
 - For the "New 2330" scenario, this was segregated into 2 portfolios from the start (\$6.65 B "core portfolio" and \$1.3 B "in-state portfolio")
 - Monthly contributions based on monthly production assumptions as provided by the NID Office of State Tax Commissioner and monthly oil price forecasts.
 - To isolate the impact of just the asset allocation differences, applied the proposed distribution policy to both scenarios: 7 % of the 5-year average value of the legacy fund assets as reported by the SIB using the value of the assets at the end of each fiscal year for the 5-year period ending with the most recently completed even-numbered fiscal year¹.

Projected Market Values in 10 Years



¹ Senate Bill No. 2330, Sixty-eighth Legislative Assembly of North Dakota, introduced by Senators Klein, Hogan, Meyer and Representatives Bosch, Keidt.