

1Q2010 IAC Meeting Materials

IAC Meeting – May 4, 2010

Alternative Investment Presentation

Timberland Asset Class Review

Alternative Investment Timberland Asset Class Review

Minnesota State Board of Investment
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May 18, 2010



AGENDA

Timberland Asset Class Overview

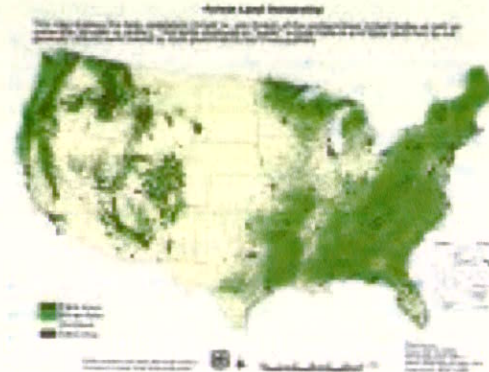
Investment Case for Timberland

Conclusions

Appendix

Timberland Asset Class Overview

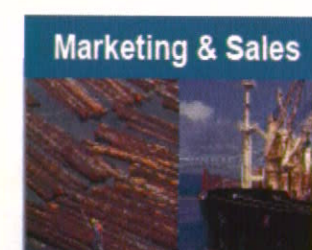
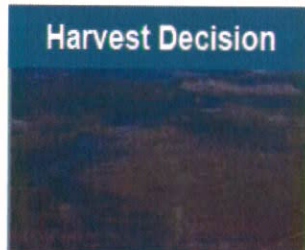
1. Purchase timberland property



2. Grow trees



3. Harvest trees, sell stumpage, sell property



Timberland Asset Class Overview

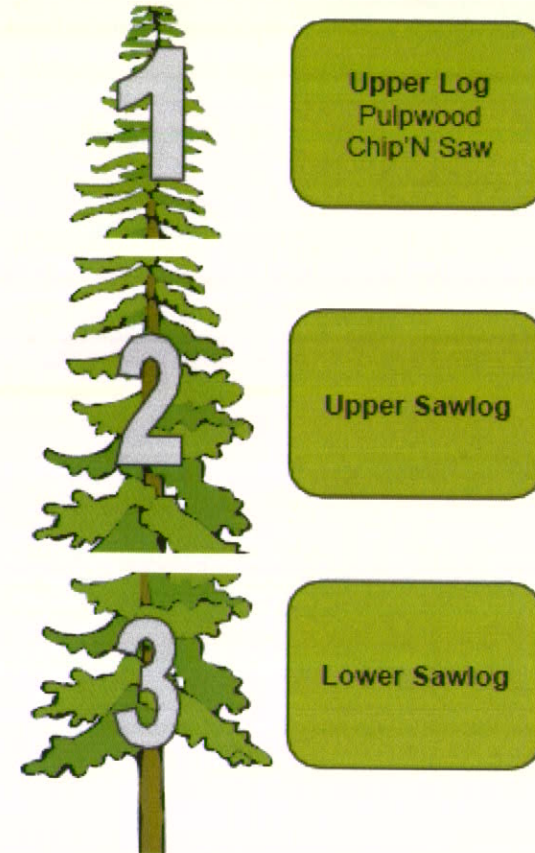
Softwoods

- Conifers, usually evergreen trees.
- Cedars, firs, junipers, spruce, pines.
- Softwood is the source of about 80% of the world's production of timber
- Material for structural building components, Furniture, Millwork, Raw material as pulp in the production of paper and paperboard, Printmaking
- Grows quickly



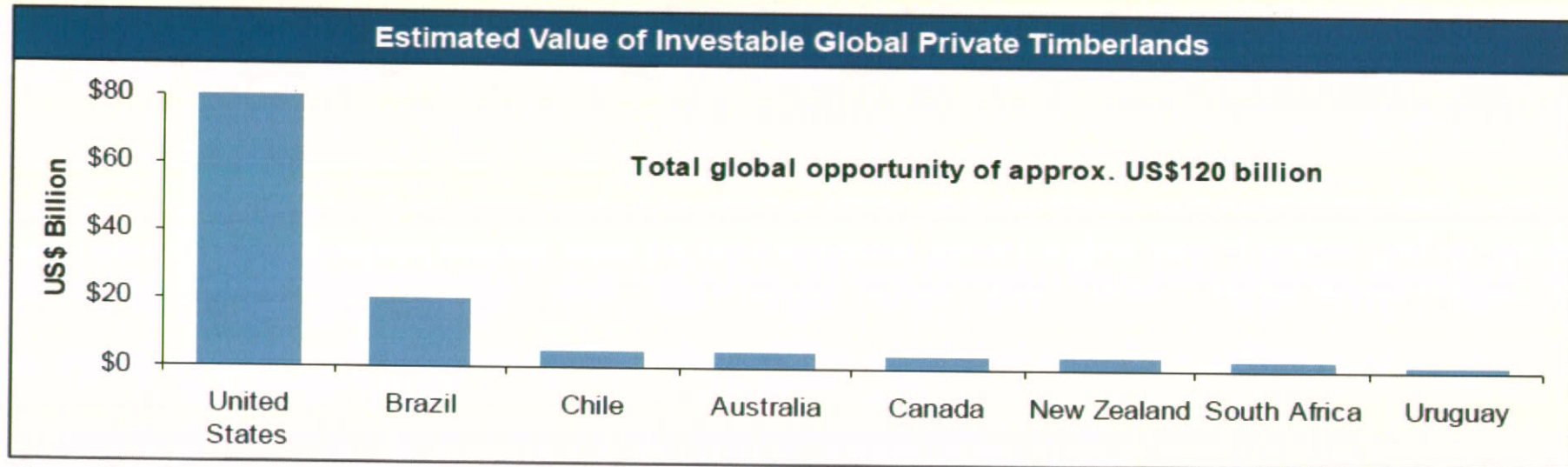
Hardwoods

- Broad-leaved; mostly deciduous,
- Oaks, beech, ash, maple, and cherry
- Construction, furniture, flooring, cooking, utensils, Musical instruments
- Typically more expensive than softwoods.
- Grows slowly



Timberland Asset Class Overview

- Majority of investable timber is located in US.
 - Appalachia, Northeast, Southern States, Great Lakes, Pacific northwest,
- International
 - Other investable timber located in South America, Canada, Australia
- Size of the Private Institutional Investment Market ~ \$41.5 billion
 - Includes only separate accounts & commingled funds
- Currently several timberland investment managers in the market trying to raise ~\$8 billion



Source: Bloomberg and Brookfield internal research.

Timberland Asset Class Overview

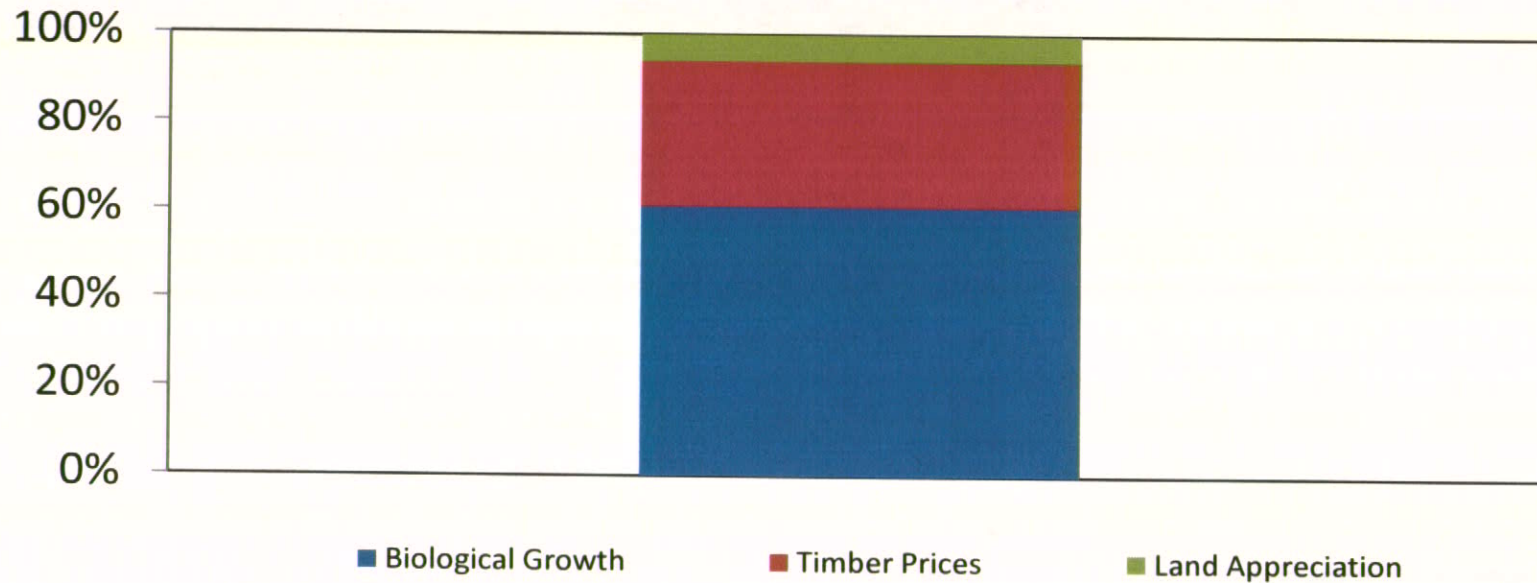
- Risks
 - Illiquid asset
 - Sometimes leveraged
 - Timber prices can be volatile
 - Land prices
 - Currency Risk
 - Political Risk
 - Weather, natural disaster, fire, bugs
 - Environmental protection
 - Demand for wood products

Timberland Asset Class Overview

- Returns
 - Biological growth
 - Timber prices
 - Land appreciation & sales / higher and better uses
 - Other income (not major driver of returns)
 - Hunting rights
 - Planned conservation credit sales
 - Pipeline rights
 - Wetland mitigation

Timberland Asset Class Overview

- Returns¹
 - Biological Growth ~ 61% of total returns
 - Timber Prices ~ 33% of total returns
 - Land Appreciation ~ 6% of total return



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Appendix

Investment Case for Timberland

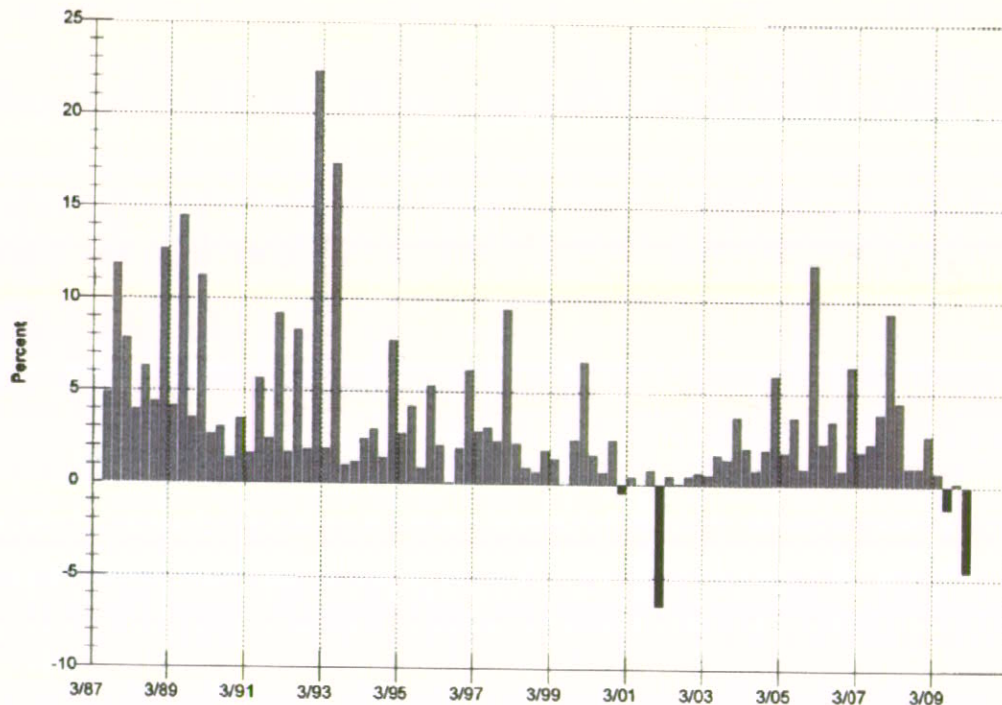
1. Expected returns between high single digits and low teens.
2. Inflation hedge / high correlation with inflation.
3. Better portfolio risk adjusted returns.
 - A. Low correlation with other asset classes
 - B. Low volatility

Investment Case for Timberland:

1. Expected Returns

Quarterly Returns Graph - MINNESOTA STATE BOARD OF INVESTMENT

NCREIF_B - NCREIF TIMBER (Qly from NCREIF website)
Quarterly from period ending March, 1987 to period ending December, 2009 (92 periods)



-1-

Richards & Tierney Rate of Return Toolbox

- The NCREIF Timberland Index has returned 14.1% since 1987.

- Gross vs. Net
- TWR vs. IRR
- In some cases: 6.48% IRR

- Wilshire Consulting Long-Term Timberland Return Assumption: 7.5%
 - 7.5% = 5% biological growth & 2.5% increase in timber prices

- Various Timberland Groups' Historical Returns are between 7 – 8% Net IRR.

- Groups are Targeting ~9% Net IRR

Investment Case for Timberland:

2. Inflation Hedge

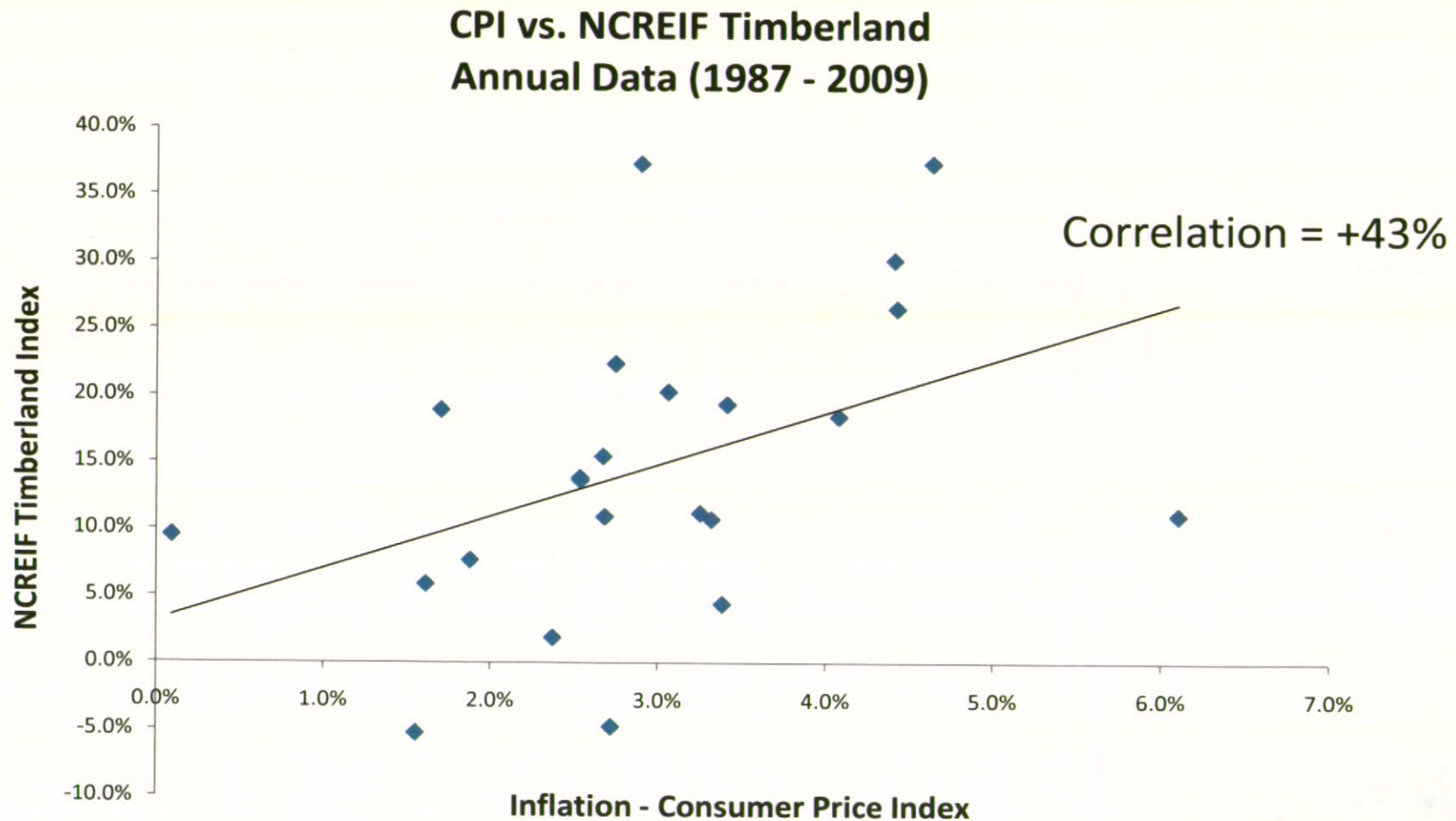
Correlations

Dec 1987 – Dec 2009

		CPI INDEX
Annual	NCREIF TIMBER INDEX	0.43
Quarterly	NCREIF TIMBER INDEX	-0.06
Annual	SBI TOT ALT	0.23
Quarterly	SBI TOT ALT	0.14

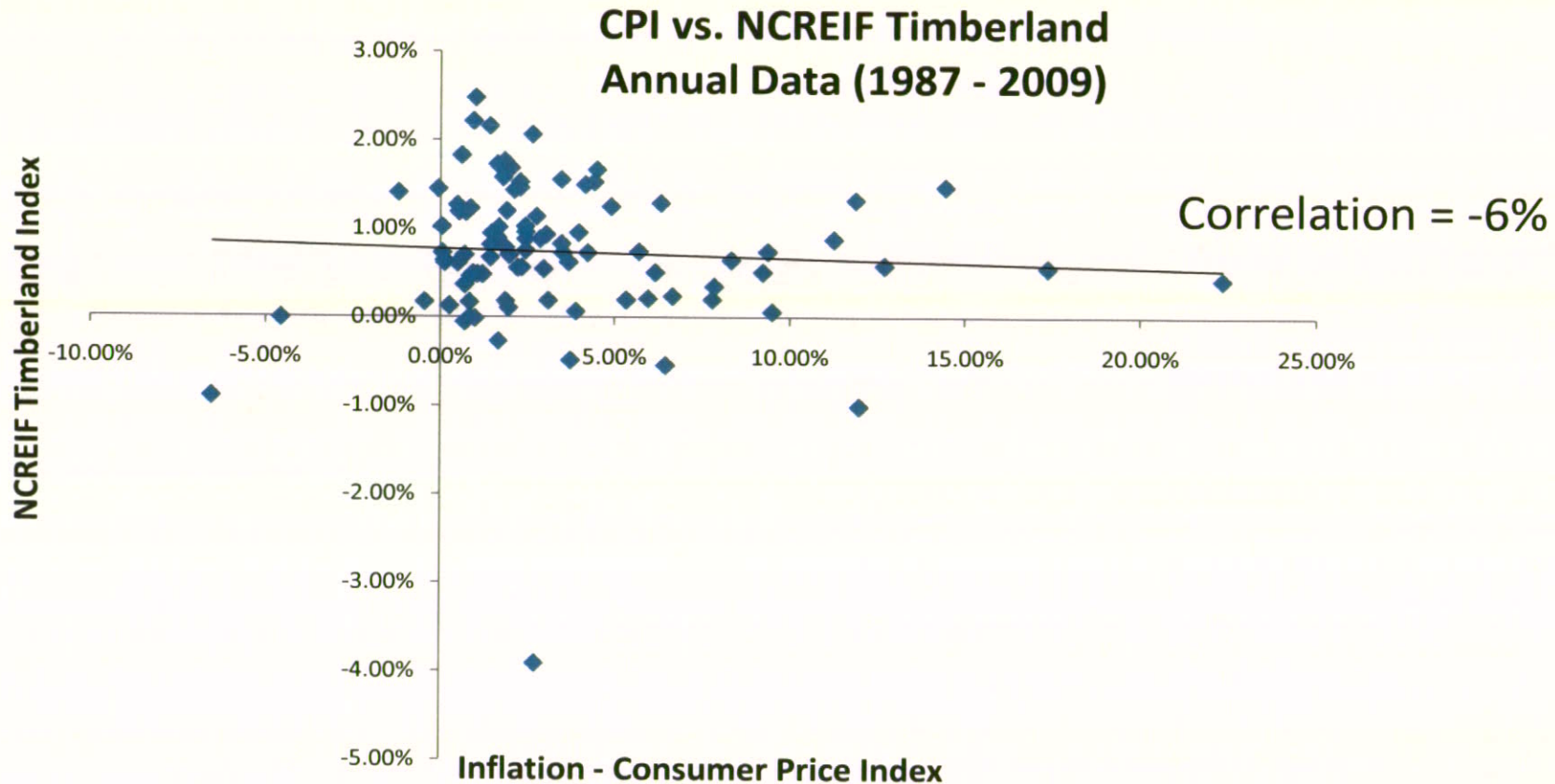
Investment Case for Timberland:

2. Inflation Hedge



Investment Case for Timberland:

2. Inflation Hedge



Investment Case for Timberland:

3A. Low Correlation w/ Other Asset Classes Leads to Better Risk Adjusted Returns.

Correlation Matrix Dec 1987 – Dec 2009		SBI TOTAL ALTERNATIVES	SBI DOMESTIC EQUITY	SBI FIXED INCOME	SBI SHORT TERM	SBI COMBINED FUNDS
Quarterly	NCREIF TIMBER INDEX	0.07	0.04	0.16	0.24	0.07
Annual	NCREIF TIMBER INDEX	0.21	0.27	0.01	0.39	0.28
Quarterly	SBI TOT ALT	1.00	0.03	-0.06	0.07	0.09
Annual	SBI TOT ALT	1.00	0.19	-0.15	0.18	0.25

SBI's historical alternative investment returns have been less correlated with the rest of the Combined Funds than the historical NCREIF Timberland returns on both a quarterly and an annual basis.

Investment Case for Timberland:

3B. Low Volatility Leads to Better Risk Adjusted Returns.

Dec 1987 – Dec 2009		SBI TOTAL ALTERNATIVES	SBI DOMESTIC EQUITY	SBI FIXED INCOME	SBI SHORT TERM	SBI COMBINED FUNDS	NCREIF TIMBER INDEX
Quarterly	Annualized Standard Deviation	9.075	17.74	4.274	1.308	11.166	7.874
Annual	Annualized Standard Deviation	12.48	19.34	5.43	2.39	12.78	9.797

The historical NCREIF Timberland returns on both a quarterly and an annual basis have lower standard deviations than the SBI's alternative investments

Investment Case for Timberland:

3. Better Portfolio Risk Adjusted Returns?

Q: Timber has lower returns, and lower volatility, so does adding Timber to the high return and high volatility resource asset class improve overall Combined Fund portfolio risk adjusted returns?

A: Probably not for the Combined Funds.

Investment Case for Timberland:

3. Better Portfolio Risk Adjusted Returns?

Methodology

- What if 50% invested in Timberland and 50% in Resource.
- NCREIF Timberland Return Series since 1995 & Historical Resource returns.
- MSBI Historical NAV → calc. quarterly Asset Class Weights since 1995.
- Quarterly Time Weighted Returns for all asset classes * Asset Allocation Weights = Weighted Average Return for Combined Funds.

Assumptions

- Start with \$50m Timberland Investment in 1995
- \$10m annual contributions to the asset class since 1995
- MSBI would need to have ~\$0.5 billion invested in Timberland today.
- Resource & Timber are never be a larger % of Combined Funds than actual Resource % of Combined Fund
- Timber investments do not distribute

Conclusions

- Adding 50% Timber to the Resource Funds results in a **DECREASE** of the Combined Funds Sharpe Ratio by **1.28%**
 - Sharpe Ratio = (Portfolio Returns – Risk Free Rate) / Portfolio Standard Deviation
- Analysis uses inflated NCREIF Timberland Gross, Time Weighted Rates of return data of ~ 14%.

AGENDA

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Appendix

Conclusions

1. Expected returns are probably lower than other alternative assets returns. Timberland returns will probably be less than the return target for the entire retirement plan.
2. It is possible that Timberland is not as strong an inflation protector as advertised.
 - The alternative program is currently widely diversified, and already provides an inflation muting component.
3. Assuming overly optimistic expected returns and unrealistic investment amounts, investing in Timber probably would not improve the overall risk adjusted returns of the Combined Funds
 - A. Timber is not strongly correlated to other assets classes, but the Alternative Program is currently broadly diversified and historically has been less correlated to the SBI's other asset classes than Timber.
 - B. Timberland does provide lower volatility than the Alternatives.

Questions / Comments

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Investment Case for Timberland

Conclusions

Appendix

Appendix A

Literature Review: Studies, Meetings, & Research Papers

- Laura Spierdijk. "Does Money Grow on Trees? The Diversification Properties of US Timberland Investments". University of Groningen, Chicago IL, March 23, 2009
- Wilshire Consulting, 2010 Asset Allocation Return and Risk Assumptions, Jan 25 2010. p 25.
- Kurt Akers. "Timber Investment". Journal of Alternative Investments Summer 2002
- James W. Sewall Company. "Measuring Timberland Performance." The Timberland Report Vol 1, Nov 4, 1999.
- Courtland L. Washburn, Clark Binkley, Charles F. Raper. "Institutional Ownership of US Timberland". Journal of Forestry, Vol 94, No 9 Sept 1996. pp21 -23.
- Courtland L. Washburn, Clark Binkley, Mary Ellen Aronow. "Timberland: The Natural Alternative". The Handbook of Inflation Hedging Investments, McGraw Hill 2006. pp231-246.
- Courtland L. Washburn, Clark Binkley, Mary Ellen Aronow. "Explaining Timberland Values in the United States." Journal of Forestry. December 2004. pp14-18.
- Courtland L. Washburn and Clark Binkley. "Do Forest Assets Hedge Inflation?". Land Economics. August 2009 p 215 - 224.
- Clark Binkley, Spencer B. Beebe, David A. New, Bettina von Hagen. "An Ecosystem based forestry investment strategy for the coastal temperate rainforests of North America". April 7, 2006.
- Clark Binkley, and Daowei Zhang. "The Informational efficiency of the Vancouver Log Market and the financial risk of holding logs in storage". August 31, 1993. p 550 -557.
- Clark Binkley. "Long run timber supply: Price elasticity, inventory elasticity, and the use of capital in timber production". Natural Resource Modeling Volume 7, Number 2, Spring 1993. p 163 -181.
- "Presentation to Potential Investors Regarding forestry Plantations Queensland". Brookfield Asset Management Inc. 2009.
- "Introduction to Timberlands Investing with Brookfield". Brookfield Asset Management Inc. 2009.
- Thomas Healey, Timothy Corriero, Rossen Rozenov. "Timber as an Institutional Investment". The Journal of Alternative Investments. Winter, 2005, pp. 60-74.
- Chung-Hong Fu. "Timberland as an Inflation Hedge". Timberland Investment Resources, November 2004. pp7 figure 6.
- Marielle Brunette, Stephane Couture, and Eric Langlais. "Amenities and Risk in Forest Management". February 12, 2009.

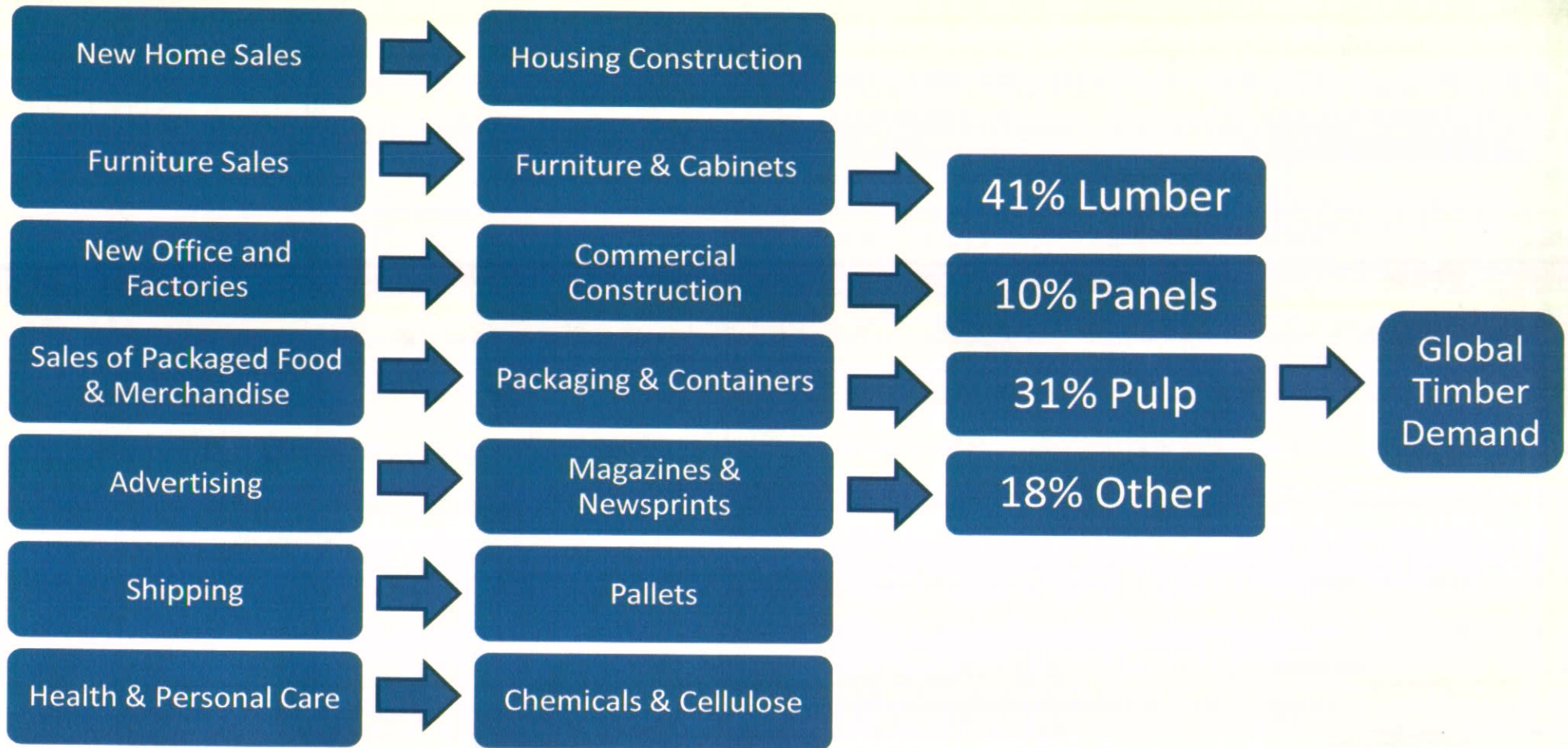
Appendix B

Correlation Matrix Dec 1993 – Dec 2009

Correlation Matrix Dec 1993 – Dec 2009		SBI REAL ESTATE	SBI RESOURCE	SBI PRIVATE EQUITY	SBI TOTAL ALTERNATIVES	SBI DOMESTIC EQUITY	SBI FOREIGN EQUITY	SBI FIXED INC	SBI SHORT TERM	SBI COMBINED FUNDS	S&P 500
Quarterly	NCREIF TIMBER INDEX	0.35	0.32	0.20	0.34	0.03	0.03	0.01	0.27	0.07	0.05
Annual	NCREIF TIMBER INDEX	0.53	0.53	0.64	0.69	0.22	0.25	-0.24	0.30	0.26	0.23
Quarterly	SBI TOT ALT	0.60	0.60	0.88	1.00	0.08	0.05	-0.05	0.10	0.13	0.08
Annual	SBI TOT ALT	0.71	0.77	0.89	1.00	0.24	0.20	-0.13	0.27	0.30	0.25

Appendix C

What is Timber Used For?



Appendix D

Some Funds Currently in the Market

	Next Fund Offering Target Size
Brookfield Timberland Fund	\$250 - \$500M
Hancock Timber X	\$600M
Greenwood Global Tree Farm II	\$200 - \$500M
The Forestland Group	\$100 - \$300M
Eco Products Fund I	\$100M
Global Timberland Resources Fund	\$300M

Appendix E

Large Timberland Investment Managers

Timberlands Investment Manager	Assets under Mgmt	
	000's Acres	(Estimated US\$ mlns)
Hancock Timber Resource Group	3,285	\$8,500
The Campbell Group	3,100	\$5,500
Brookfield Asset Management	2,500	\$3,400
Resource Management Systems	2,638	\$3,300
Forest Investment Associates	1,876	\$3,200
Forest Capital Partners	2,070	\$2,200
Global Forest Partners	965	\$2,100
The Forest Land Group	3,150	\$1,800
GMO	2,100	\$1,700
TimberVest	955	\$1,600
RMK	1,143	\$1,520
Molpus Woodlands Group	750	\$1,000
Wagner	2,000	\$700
Total	26,532	\$36,520

AUM includes REITS,
Commingled funds,
Private Accounts, and
Co-Investments

Source: Company reports/websites, DANA Ltd. 2009,

Endnotes

- ¹ Thomas Healey, Timothy Corriero, & Rossen Rozenov. Timber as an Institutional Investment, Winter 2006, The journal of Alternative Investments , p 66.
- ² Chung-Hong Fu. “Timberland as an Inflation Hedge”. Timberland Investment Resources, November 2004. pp7 figure 6.