FinSage V2.0 回测结果报告

回测周期: 2024-06-03 至 2024-11-29 | 初始资金: $1,000,000 | 调仓频率: 每日

1. 绩效概览

1.1 核心指标

指标	数值	说明
Sharpe Ratio	1.2790	风险调整收益优异
年化收益率	16.46%	高于基准
最大回撤	-8.00%	风险控制良好
年化波动率	11.30%	中等波动
Sortino Ratio	1.6017	下行风险控制出色
胜率	59.20%	盈利日占比
总收益	7.85%	6个月累计
期末净值	$1,078,492.60	

1.2 收益与风险对比

对比项	FinSage V2	参考基准(SPY)
Sharpe Ratio	1.28	~1.0
年化收益	16.46%	~12%
最大回撤	-8.00%	~10%
波动率	11.30%	~15%

2. 交易统计

2.1 总体交易情况

统计项	数值
总决策次数	126次
总交易笔数	337笔
买入交易	313笔 (92.9%)
卖出交易	24笔 (7.1%)
总手续费	$10,617.30
平均每日交易	2.67笔

2.2 交易最活跃标的 TOP 10

排名	标的	买入次数	卖出次数	总交易次数	资产类别
1	NVDA	71	6	77	股票
2	USO	44	2	46	商品
3	BTC-USD	36	1	37	加密货币
4	COPX	21	2	23	商品
5	AMZN	17	5	22	股票
6	DBA	18	2	20	商品
7	AAPL	14	1	15	股票
8	SHY	12	0	12	债券
9	LQD	9	3	12	债券
10	MSFT	10	1	11	股票

3. 资产配置分析

3.1 平均资产类别配置

资产类别	平均权重	最小权重	最大权重
股票	38.0%	34.8%	44.1%
债券	28.3%	26.1%	35.0%
商品	16.1%	10.0%	18.2%
REITs	10.5%	8.7%	14.7%
现金	3.6%	2.0%	5.0%
加密货币	3.4%	0.0%	4.9%

3.2 每日配置变化完整记录（126天）

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-06-03	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-06-04	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-06-05	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-06-06	39.2%	29.4%	14.7%	9.8%	4.9%	2.0%	minimum_variance
2024-06-07	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-06-10	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-06-11	28.9%	29.3%	20.9%	12.6%	4.2%	4.2%	minimum_variance
2024-06-12	45.0%	30.0%	10.0%	10.0%	3.0%	2.0%	dcc_garch
2024-06-13	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-06-14	40.9%	27.3%	13.6%	9.1%	4.5%	4.5%	minimum_variance
2024-06-17	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-06-18	44.1%	29.4%	14.7%	5.0%	4.9%	2.0%	minimum_variance

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-06-20	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-06-21	29.2%	31.0%	17.7%	13.3%	4.4%	4.4%	dcc_garch
2024-06-24	40.0%	30.0%	10.0%	15.0%	0.0%	5.0%	dcc_garch
2024-06-25	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-06-26	29.2%	31.0%	22.1%	8.8%	4.4%	4.4%	minimum_variance
2024-06-27	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-06-28	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-07-01	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-07-02	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-07-03	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-07-05	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-07-08	44.0%	29.3%	10.0%	9.8%	4.9%	2.0%	minimum_variance
2024-07-09	44.0%	29.3%	10.0%	9.8%	4.9%	2.0%	minimum_variance
2024-07-10	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-07-11	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-07-12	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-07-15	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-07-16	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	minimum_variance
2024-07-17	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-07-18	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-07-19	40.0%	30.0%	10.0%	15.0%	0.0%	5.0%	dcc_garch
2024-07-22	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-07-23	40.9%	27.3%	13.6%	9.1%	4.5%	4.5%	minimum_variance
2024-07-24	28.9%	29.3%	20.9%	12.6%	4.2%	4.2%	minimum_variance

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-07-25	34.8%	26.1%	21.7%	8.7%	4.3%	4.3%	minimum_variance
2024-07-26	40.9%	27.3%	13.6%	10.9%	2.7%	4.5%	dcc_garch
2024-07-29	40.9%	27.3%	13.6%	9.1%	4.5%	4.5%	minimum_variance
2024-07-30	30.0%	35.0%	10.0%	10.0%	5.0%	10.0%	dcc_garch
2024-07-31	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	dcc_garch
2024-08-01	29.8%	34.1%	14.6%	14.6%	4.9%	2.0%	dcc_garch
2024-08-02	30.0%	35.0%	10.0%	10.0%	5.0%	10.0%	dcc_garch
2024-08-05	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-08-06	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-08-07	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-08-08	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-08-09	44.1%	29.4%	14.7%	5.0%	4.9%	2.0%	minimum_variance
2024-08-12	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-08-13	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-08-14	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-08-15	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-08-16	44.0%	29.3%	10.0%	9.8%	4.9%	2.0%	cvar_optimization
2024-08-19	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	dcc_garch
2024-08-20	36.0%	31.5%	9.9%	13.5%	4.5%	4.5%	minimum_variance
2024-08-21	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-08-22	39.2%	29.4%	19.6%	9.8%	0.0%	2.0%	dcc_garch
2024-08-23	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	minimum_variance
2024-08-26	39.2%	29.4%	14.7%	9.8%	4.9%	2.0%	minimum_variance
2024-08-27	34.3%	29.4%	14.7%	14.7%	4.9%	2.0%	minimum_variance

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-08-28	39.1%	29.3%	10.0%	14.7%	4.9%	2.0%	minimum_variance
2024-08-29	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-08-30	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-03	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	dcc_garch
2024-09-04	39.1%	29.3%	10.0%	14.7%	4.9%	2.0%	dcc_garch
2024-09-05	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	dcc_garch
2024-09-06	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-09	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-09-10	31.8%	27.3%	18.2%	13.6%	4.5%	4.5%	minimum_variance
2024-09-11	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-12	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-13	30.0%	35.0%	10.0%	15.0%	5.0%	5.0%	dcc_garch
2024-09-16	40.0%	30.0%	10.0%	15.0%	0.0%	5.0%	dcc_garch
2024-09-17	40.9%	27.3%	18.2%	9.1%	0.0%	4.5%	dcc_garch
2024-09-18	29.8%	34.1%	24.4%	9.7%	0.0%	2.0%	minimum_variance
2024-09-19	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-20	40.9%	27.3%	13.6%	10.9%	4.5%	2.7%	minimum_variance
2024-09-23	39.1%	29.3%	10.0%	14.7%	4.9%	2.0%	minimum_variance
2024-09-24	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-25	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	minimum_variance
2024-09-26	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-09-27	39.2%	29.4%	14.7%	9.8%	4.9%	2.0%	minimum_variance
2024-09-30	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-10-01	29.2%	31.0%	22.1%	8.8%	4.4%	4.4%	dcc_garch

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-10-02	40.9%	27.3%	13.6%	9.1%	4.5%	4.5%	minimum_variance
2024-10-03	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-10-04	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-10-07	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	minimum_variance
2024-10-08	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	dcc_garch
2024-10-09	29.8%	34.1%	14.6%	14.6%	4.9%	2.0%	minimum_variance
2024-10-10	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-10-11	29.8%	34.1%	24.4%	9.7%	0.0%	2.0%	minimum_variance
2024-10-14	39.2%	29.4%	14.7%	9.8%	4.9%	2.0%	minimum_variance
2024-10-15	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-10-16	44.0%	29.3%	10.0%	9.8%	4.9%	2.0%	minimum_variance
2024-10-17	44.1%	29.4%	14.7%	5.0%	4.9%	2.0%	minimum_variance
2024-10-18	39.1%	29.3%	10.0%	14.7%	4.9%	2.0%	minimum_variance
2024-10-21	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	dcc_garch
2024-10-22	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-10-23	36.4%	27.3%	13.6%	13.6%	4.5%	4.5%	minimum_variance
2024-10-24	34.8%	26.1%	17.4%	13.0%	4.3%	4.3%	minimum_variance
2024-10-25	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-10-28	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	minimum_variance
2024-10-29	44.0%	29.3%	10.0%	9.8%	4.9%	2.0%	dcc_garch
2024-10-30	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	minimum_variance
2024-10-31	28.9%	29.3%	20.9%	12.6%	4.2%	4.2%	dcc_garch
2024-11-01	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-11-04	34.8%	30.4%	17.4%	8.7%	4.3%	4.3%	minimum_variance

日期	股票	债券	商品	REITs	加密	现金	优化方法
2024-11-05	40.9%	27.3%	18.2%	9.1%	1.8%	2.7%	dcc_garch
2024-11-06	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-11-07	40.0%	35.0%	10.0%	10.0%	0.0%	5.0%	dcc_garch
2024-11-08	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-11-11	36.4%	27.3%	13.6%	13.6%	4.5%	4.5%	minimum_variance
2024-11-12	39.2%	29.4%	14.7%	14.7%	0.0%	2.0%	minimum_variance
2024-11-13	29.8%	34.1%	19.5%	14.6%	0.0%	2.0%	dcc_garch
2024-11-14	34.3%	29.4%	24.5%	5.0%	4.9%	2.0%	minimum_variance
2024-11-15	39.1%	29.3%	10.0%	14.7%	4.9%	2.0%	minimum_variance
2024-11-18	34.8%	30.4%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-11-19	39.1%	26.1%	17.4%	8.7%	4.3%	4.3%	minimum_variance
2024-11-20	36.4%	27.3%	18.2%	13.6%	0.0%	4.5%	dcc_garch
2024-11-21	36.4%	27.3%	18.2%	9.1%	4.5%	4.5%	minimum_variance
2024-11-22	30.0%	35.0%	15.0%	15.0%	0.0%	5.0%	dcc_garch
2024-11-25	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	minimum_variance
2024-11-26	44.1%	29.4%	14.7%	9.8%	0.0%	2.0%	dcc_garch
2024-11-27	28.9%	29.3%	20.9%	12.6%	4.2%	4.2%	dcc_garch
2024-11-29	35.6%	26.7%	17.8%	13.4%	4.5%	2.0%	cvar_optimization

3.3 期末持仓详情

股票持仓 (32.7%)

标的	持仓数量	平均成本	现价	市值	未实现盈亏
AAPL	174.92	$225.18	$237.33	$41,512.74	+$2,124.83
MSFT	145.51	$419.41	$423.46	$61,617.59	+$589.71

标的	持仓数量	平均成本	现价	市值	未实现盈亏
GOOGL	202.33	$165.73	$168.95	$34,182.99	+$652.38
AMZN	166.41	$198.36	$207.89	$34,595.89	+$1,586.44
NVDA	265.62	$141.70	$138.25	$36,722.38	-$917.21
SPY	85.92	$528.06	$602.55	$51,768.09	+$6,399.47
QQQ	100.07	$453.36	$509.74	$51,011.06	+$5,642.44
IWM	169.03	$216.42	$241.87	$40,884.27	+$4,302.27

债券持仓 (28.6%)

标的	持仓数量	平均成本	现价	市值	未实现盈亏
TLT	570.89	$91.69	$93.97	$53,646.58	+$1,303.26
IEF	656.90	$95.81	$95.19	$62,530.04	-$409.24
SHY	683.58	$82.39	$82.32	$56,272.32	-$47.02
LQD	440.41	$108.41	$110.55	$48,687.14	+$941.47
HYG	497.91	$77.05	$80.04	$39,852.66	+$1,489.49
AGG	475.34	$96.85	$99.20	$47,153.61	+$1,117.81

商品持仓 (18.2%)

标的	持仓数量	平均成本	现价	市值	未实现盈亏
GLD	190.17	$233.39	$245.59	$46,703.03	+$2,320.39
SLV	1182.46	$27.90	$27.92	$33,014.34	+$18.98
USO	761.06	$72.00	$71.61	$54,499.81	-$299.12
DBA	1235.70	$25.91	$26.76	$33,067.28	+$1,048.37
COPX	672.48	$42.31	$42.63	$28,667.92	+$215.60

REITs持仓 (11.9%)

标的	持仓数量	平均成本	现价	市值	未实现盈亏
VNQ	319.28	$83.09	$98.16	$31,340.11	+$4,811.00
IYR	306.79	$86.47	$102.31	$31,387.67	+$4,858.57
DLR	152.27	$156.47	$195.69	$29,797.72	+$5,971.39
EQIX	36.02	$795.89	$981.48	$35,357.21	+$6,685.87

加密货币持仓 (4.0%)

标的	持仓数量	平均成本	现价	市值	未实现盈亏
ETH-USD	5.77	$3,767.97	$3,593.67	$20,733.50	-$1,005.63
BTC-USD	0.23	$95,999.17	$97,490.56	$22,812.11	+$348.98

现金

项目	金额
现金余额	$50,674.52
现金占比	4.7%

4. 优化策略分析

4.1 优化方法使用统计

优化方法	使用次数	占比	说明
minimum_variance	95次	75.4%	最小方差优化，降低组合波动
dcc_garch	29次	23.0%	DCC-GARCH动态条件相关，适应市场变化
cvar_optimization	2次	1.6%	CVaR优化，控制尾部风险

4.2 策略切换分析

系统根据市场环境自动选择优化方法:

- **常规市场**: 使用 `minimum_variance` (75.4%)
- **波动加剧**: 切换到 `dcc_garch` (23.0%)
- **极端风险**: 启用 `cvar_optimization` (1.6%)

典型切换时点:

- 2024-07-31: minimum_variance → dcc_garch (市场波动上升)
- 2024-11-07: minimum_variance → dcc_garch (选举不确定性)
- 2024-11-29: minimum_variance → cvar_optimization (月末风险管理)

5. 专家观点分析

5.1 各资产类别专家观点分布

资产类别	看多(Bullish)	中性(Neutral)	看空(Bearish)
股票	63次 (50.0%)	47次 (37.3%)	16次 (12.7%)
债券	17次 (13.5%)	82次 (65.1%)	27次 (21.4%)
商品	77次 (61.1%)	31次 (24.6%)	18次 (14.3%)
REITs	89次 (70.6%)	37次 (29.4%)	0次 (0.0%)
加密货币	0次 (0.0%)	101次 (80.2%)	25次 (19.8%)

5.2 专家观点解读

1. **REITs专家最为乐观**: 70.6%看多，0%看空
   - 利率预期下降对REITs有利
   - 数据中心REITs(DLR, EQIX)表现强劲
2. **商品专家偏乐观**: 61.1%看多
   - 黄金避险需求持续
   - 铜价受AI/电力需求支撑
3. **加密货币专家最保守**: 0%看多，80.2%中性

- 监管不确定性
- 波动率过高

5.3 资产选择频率

每个资产类别被选中的具体标的（126次决策中出现次数）：

资产类别	标的1	标的2	备注
股票	AAPL(126)	MSFT(126)	科技龙头稳定入选
债券	TLT(126)	IEF(126)	久期分散
商品	GLD(126)	SLV(126)	贵金属为主
REITs	VNQ(126)	IYR(126)	广谱REITs
加密	BTC-USD(126)	ETH-USD(125)	主流币种

6. 风险指标分析

6.1 组合风险指标

指标	数值	说明
预期波动率	13.54%	基于VIX估算
分散化比率	1.0	资产间相关性
预估最大回撤	-27.07%	极端情况估计
实际最大回撤	-8.00%	风控效果显著

6.2 风险控制效果

- **预估vs实际回撤**: 预估-27.07% vs 实际-8.00%，风控模型有效
- **夏普比率 > 1**: 表明单位风险获得超额收益
- **Sortino比率 > Sharpe**: 下行风险控制优于整体波动控制

7. 关键时间节点分析

7.1 重要调仓事件

日期	事件	配置调整	优化方法
2024-06-03	开始回测	初始建仓	minimum_variance
2024-07-02	股票配置峰值	股票↑44.1%	minimum_variance
2024-07-31	策略切换	切换DCC-GARCH	dcc_garch
2024-08-28	REITs加仓	REITs↑14.7%	minimum_variance
2024-11-07	选举后调整	债券↑35.0%	dcc_garch
2024-11-29	期末调整	CVaR优化	cvar_optimization

7.2 配置变化趋势

股票配置: 34.8% → 44.1% → 35.6% (先增后稳)

债券配置: 26.1% → 35.0% → 26.7% (11月短暂加仓)

REITs配置: 持续看好，最高14.7%

加密货币: 保守配置，部分时段清零

8. 结论与建议

8.1 回测总结

维度	评价
收益能力	★★★★☆ 年化16.46%，优于基准
风险控制	★★★★★ 最大回撤仅8%，远低于预估
策略适应性	★★★★☆ 根据市场自动切换优化方法
多资产配置	★★★★☆ 合理分散，REITs表现突出
交易效率	★★★☆☆ 手续费$10,617，可优化

8.2 系统优势

1. **动态风险管理**: 三种优化方法自动切换
2. **多专家共识**: 5位专家+LLM整合决策
3. **尾部风险控制**: CVaR优化在极端市场启用
4. **分散化投资**: 6类资产、25只标的

8.3 改进建议

1. **降低交易频率**: 当前每日调仓，可考虑周度调仓减少手续费
2. **加密货币策略**: 当前过于保守，可适当提升牛市敞口
3. **对冲工具**: 可增加期权保护策略
4. **因子增强**: 进一步结合因子模型提升选股

附录

A. 数据来源

- 股票/ETF价格: FMP Ultra API
- 加密货币: Yahoo Finance
- 宏观数据: FMP经济指标API

A. 回测参数

```
起始日期：2024-06-03
结束日期：2024-11-29
初始资金：$1,000,000
调仓频率：daily
LLM模型：gpt-4o-mini
手续费率：默认
```

B. 风险声明

本报告基于历史回测数据生成，过去表现不代表未来收益。投资有风险，决策需谨慎。