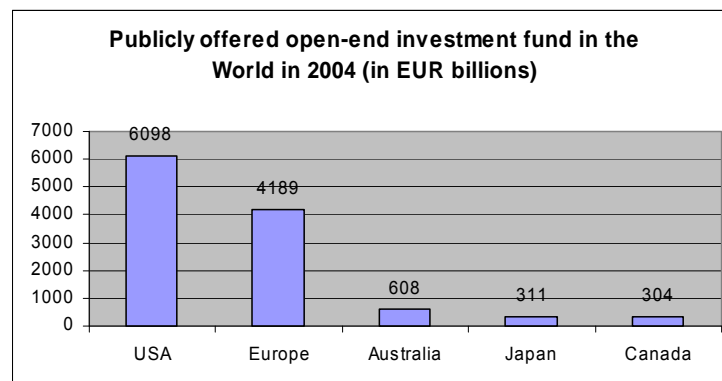# PEVA

Day 4 Slides

Non-U.S. Studies of PEVA

Outline of the lecture

1. The World market for mutual funds

2. Evidence from European funds

3. Evidence from Italian funds

4. Evidence from Japanese funds

5. Other evidence

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1. An overview of the World market for mutual funds

Publicly offered open-end investment fund in the World in 2004 (in EUR billions)

	USA	Europe	Australia	Japan	Canada
	6098	4189	608	311	304

Source: EFAMA, Quarterly report 2004

Characteristics of major mutual funds markets

	Total assets	Number of Funds	Average Size	Asset allocation (in %)				
				Equity	Bond	Balanced	Money	Others
U.S.A.	**5,149**	**7,123**	**723**	**55.1**	**15.2**	**6.9**	**22.7**	**0.1**
Europe	**1,830**	**10,828**	**256**	**39.5**	**31.3**	**11.7**	**16.4**	**1.1**
France	599	5,581	107	18.1	26.3	24.3	31.3	0.1
Italy	435	703	618	18.2	50.5	7.8	19.0	4.8
U.K.	285	1,541	185	83.5	7.7	8.2	0.5	0.1
Spain	238	1,866	128	19.9	36.9	18.3	24.7	0.0
Germany	195	848	230	43.0	39.7	3.5	13.8	0.0
Netherlands	78	289	270	54.2	26.6	8.3	9.2	1.8

This table presents the characteristics of the major European mutual fund markets and the United States. All figures are obtained from FEFSI and are of December 31, 1998. The first column presents the total market value (million US dollar). The second column the number of funds, the third column the average size and the last 5 columns the asset allocation of all mutual funds.

Source: Otten & Bams, 2002

Assets under management in mutual funds in European countries

		EUR millions	Share
1	Luxembourg	1'024'984	24.50%
2	France	1'006'500	24.00%
3	United Kingdom	380'875	9.10%
4	Italy	375'694	9.00%
5	Ireland	343'308	8.20%
6	Spain	233'124	5.60%
7	Germany	224'691	5.40%
8	Belgium	93'431	2.20%
9	Austria	89'046	2.10%
10	Sweden	79'938	1.90%
11	Netherlands	72'326	1.70%
12	Switzerland	70'587	1.70%
13	Denmark	47'573	1.10%
14	Greece	31'647	0.80%
15	Finland	27'647	0.70%
16	Portugal	23'420	0.60%
17	Norway	22'659	0.50%
18	Turkey	13'297	0.30%
19	Liechtenstein	9'980	0.20%
20	Poland	8'820	0.21%
21	Hungary	3'766	0.10%
22	Czech Republic	3'583	0.10%
23	Slovakia	1'592	0.04%
	All Funds	4'188'489	100%

Source: EFAMA quarterly statistical release, March 2005

Asset allocation of European mutual funds through time (1990-1998)
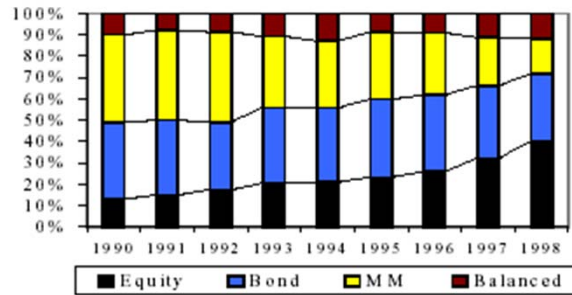

Figure 1 provides the average asset allocation of the six main European mutual fund markets, being France, Germany, Italy, the Netherlands, Spain and the United Kingdom. Data are from 12/90 through 12/98 and are obtained from FEFSI Statistics 1999.

Source: Otten & Bams, 2002

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Equity mutual funds as a percentage of total stock market capitalization

	1992	1993	1994	1995	1996	1997	1998
United States	**16%**	**20%**	**22%**	**26%**	**28%**	**26%**	**27%**
Europe	**6%**	**8%**	**8%**	**8%**	**8%**	**11%**	**11%**
France	13%	12%	13%	11%	11%	11%	12%
Germany	3%	5%	7%	7%	6%	8%	8%
Italy	8%	9%	12%	11%	9%	13%	14%
Netherlands	6%	8%	7%	9%	9%	10%	10%
Spain	0%	1%	1%	1%	2%	9%	14%
United Kingdom	10%	11%	11%	11%	10%	11%	11%

This table presents the total market size of the equity mutual funds as a percentage of total stock market capitalization at the end of each year. Sources are FEFSI, ICI and Datastream.

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2. Performance of European mutual funds

(R. Otten and D. Bams, 2002, European Mutual Fund Performance, European Financial Management, vol. 8, no 1, pp. 75-101)

- Study pure domestic equity funds from 5 European countries
- 506 open-end equity mutual funds
- Use monthly logarithmic returns from Jan 1991-Dec 1998
- Returns are computed in local currency and include dividends
- Dead funds are included in the study in order to avoid surivivorship bias
- Disappeared funds: 5% GER, 6% ITA, 11% NED, 25% UK
- Overestimation of returns: 0.12% GER, 0.45% ITA, 0.11% NED, 0.15% UK (per year)

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	No funds	Mean return	Stdev	Size	Exp. ratio
France					
Growth	55	10.9	14.2	396	1.1
Index	20	10.0	17.3	65	1.2
Smaller Companies	24	11.8	14.3	81	1.3
All funds	**99**	**10.9**	**14.8**	**258**	**1.2**
Germany					
General	45	14.3	17.6	369	0.8
Growth	5	12.5	17.5	125	0.8
Income	2	15.0	18.4	660	1.0
Smaller Companies	5	11.0	15.5	121	0.9
All funds	**57**	**13.9**	**17.5**	**335**	**0.8**
Italy					
Italian equity	21	14.2	18.2	261	2.0
Italian specialist	16	16.5	21.3	223	1.8
All funds	**37**	**15.2**	**19.6**	**242**	**2.0**
Netherlands					
Growth	5	22.1	16.2	500	0.6
Index	3	23.0	21.3	50	0.4
Smaller Companies	1	18.0	15.5	505	0.6
All funds	**9**	**22.0**	**16.6**	**350**	**0.5**
UK					
Growth/Income	79	12.6	13.6	326	1.1
Income	72	12.6	13.6	260	1.2
Growth	102	12.8	13.7	215	1.3
Smaller Companies	51	10.5	14.9	222	1.3
All funds	**304**	**12.3**	**13.9**	**256**	**1.2**

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In order to implement a 4-factor performance analysis, benchmark returns are necessary for market, SMB, HML and momentum (Carhart approach)

Market:
Equally weighted of all stocks of the countries comprised in the Worldscope universe that have a market cap larger than 25 millions USD, minus the riskfree rate.

SMB:
Portfolio of the top 80% market cap. stocks minus the bottom 20% market cap stocks

HML:
Top 30% stocks minus bottom 30% of stocks ranked according to Book/Market

Momentum:
Return difference of the top 30% and the bottom 30% portfolios ranked according to past 6 month stock performance.

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Returns on estimated factors (%/year)

Factor portfolio	Excess return	Standard deviation	Factor portfolio	Excess return	Standard deviation
France			**Netherlands**		
Market	3.57	15.08	Market	14.59	14.98
SMB	-2.96	12.99	SMB	-4.57	8.17
HML	-2.24	11.21	HML	-0.41	12.15
PR6m	-1.43	9.98	PR6m	9.02	11.81
Germany			**UK**		
Market	7.38	15.24	Market	7.49	13.58
SMB	-7.99	8.84	SMB	-4.86	11.31
HML	4.03	9.41	HML	-3.24	8.67
PR6m	-0.14	10.23	PR6m	11.49	9.24
Italy					
Market	4.92	25.04			
SMB	-6.20	12.35			
HML	1.87	13.10			
PR6m	12.00	14.55			

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Performance measurement

- The model used to measure performance is the Carhart (1997) model:

$R_{it} - R_{ft} = \alpha_i + b_0(R_{mt} - R_{ft}) + b_1 SMB_t + b_2 HML_t + b_3 PR6_{mt} + \varepsilon_{it}$

Conditional performance measures

- They also estimate a conditional model where all the b parameters are assumed to be time-varying

$R_{it} - R_{ft} = \alpha_i + b_{0t}(R_{mt} - R_{ft}) + b_{1t} SMB_t + b_{2t} HML_t + b_{3t} PR6_{mt} + \varepsilon_{it}$

- b are varying according to a set a variables representing the general evolution of the economy, e.g.

$b_{it} = b_0 + c_0 TBill_{t-1} + d_0 DYield_{t-1}$

Results

	α	M	SMB	HML	Pr6m	R²adj	No funds	α distrib. +/0/-
France								
Growth	0.36	0.87	0.00	-0.09	-0.02	0.95	55	2/94/4
Index	-1.68	1.03	-0.21	-0.06	-0.10	0.97	20	0/75/25
Small comp.	2.28	0.78	0.50	-0.01	0.15	0.91	24	33/63/4
All funds	0.22	0.89	0.06	-0.07	0.01	0.97	99	
Germany								
General	-1.32	1.05	-0.01	0.04	0.08	0.96	45	2/84/14
Growth	-1.68	1.12	0.00	0.07	0.11	0.95	5	0/100/0
Income	-2.40	1.04	-0.03	0.05	0.08	0.95	2	0/50/50
Small comp.	0.56	1.21	0.91	-0.09	-0.03	0.89	5	40/60/0
All funds	-1.20	1.07	0.06	0.03	0.07	0.97	57	
Italy								
Italian equity	0.72	0.67	0.07	0.10	0.06	0.95	21	5/95/0
Italian spec.	1.20	0.77	0.04	0.12	0.11	0.95	16	0/94/6
All funds	0.84	0.71	0.06	0.10	0.08	0.95	37	

	α	M	SMB	HML	Pr6m	R²adj	No Funds	α distrib. +/0/-
Netherlands								
Growth	1.80	0.95	0.18	0.09	0.01	0.94	5	0/100/0
Index	1.20	1.06	0.14	0.11	-0.04	0.94	3	0/100/0
Small comp:	3.96	0.84	0.80	0.00	-0.06	0.76	1	0/100/0
All funds	1.80	0.95	0.24	0.08	-0.01	0.95	9	
UK								
Growth/Income	0.84	0.95	0.07	0.08	-0.05	0.97	79	9/87/4
Income	1.56	0.92	0.15	0.14	-0.05	0.96	72	19/77/4
Growth	1.32	0.98	0.22	0.00	-0.06	0.98	102	16/79/5
Small comp:	2.04	0.87	0.98	-0.11	0.05	0.97	51	25/73/2
All funds	1.33	0.94	0.29	0.04	-0.04	0.98	304	

Conditional vs unconditional results

	Unconditional alpha	R^{2}adj	Cond. alpha	R^{2}adj	Wald (p-value)
France					
Growth	0.36	0.95	0.81	0.96	0.027
Index	-1.68	0.97	-1.95	0.96	0.904
Small companies	2.28	0.91	3.74	0.93	0.003
All funds	0.22	0.97	0.80	0.97	0.001
Germany					
General	-1.32	0.96	-2.15	0.97	0.022
Growth	-1.68	0.95	-2.68	0.96	0.074
Income	-2.40	0.95	-2.98	0.94	0.001
Small companies	0.56	0.89	0.18	0.91	0.007
All funds	-1.20	0.97	-2.17	0.97	0.028
Italy					
Italian equity	0.72	0.95	0.51	0.96	0.000
Italian specialist	1.20	0.95	0.90	0.97	0.000
All funds	0.84	0.95	0.43	0.97	0.000

	Unconditional alpha	R^{2}adj	Cond. alpha	R^{2}adj	Wald (p-val)
Netherlands					
Growth	1.80	0.94	2.74	0.96	0.000
Index	1.20	0.94	1.35	0.94	0.303
Small companies	3.96	0.76	6.49	0.80	0.011
All funds	1.80	0.95	3.08	0.96	0.006
UK					
Growth/Income	0.84	0.97	0.73	0.98	0.062
Income	1.56	0.96	1.51	0.97	0.012
Growth	1.32	0.98	1.04	0.98	0.253
Small companies	2.04	0.97	2.96	0.97	0.275
All funds	1.33	0.98	1.40	0.98	0.080

- Instead of measuring the performance after management fees, they address the issue of the performance before management fees

Country	After fees alpha	Before fees alpha
France		
unconditional	0.22	1.40
conditional	0.80	2.04
Germany		
unconditional	-1.20	-0.36
conditional	-2.17	-1.32
Italy		
unconditional	0.84	2.88
conditional	0.43	2.32
Netherlands		
unconditional	1.80	2.64
conditional	3.08	3.59
UK		
unconditional	1.33	2.56
conditional	1.40	2.59

- Managers seem to be able to obtain positive risk-adjusted returns!

The issue of performance persistence

- Does past performance repeat in the future ?

- In terms of gross returns?

- In terms of risk adjusted returns?

- Weakly (UK only) but the sample is apparently too small…

Determinants of alpha

- What drives risk adjusted performance?

- Size of the fund and the expense ratio are important.

$$\alpha i = c0 + c1\ \text{Expense ratio}_i + c2\ \text{LN Assets}_i + c3\ \text{LN Age}_i + e_i$$

Country	Constant	Expenses	LN Assets	LN Age	R_{adj}
France	-2.52	-0.32	0.80	-0.64	0.04
Germany	0.83	-3.19	0.32	-0.85	0.15
Netherlands	2.51	-3.05	0.50	-0.01	0.53
UK	3.03	-1.11	0.54	-1.02	0.08

Conclusions

- In aggregate, Europeans funds are more invested in fixed income instrument than in the US

- European funds are invested more in small and high book-to-market stocks

- Small cap mutual funds appear to out-perform the benchmark

- Positive aggregate alphas but only significant in the UK!

- Weak evidence of performance persistence

- In summary, European funds seem to be able to offset their expenses and add value to the investor.

Grünbichler and Pleschiutschnig (2000, Working Paper)

- Provide complementary evidence for European mutual funds

- They study 333 mutual funds that are investing in internationally diversified portfolios.

- They find that these funds do not have positive risk-adjusted performance

- However these funds display persistence in risk-adjusted performance

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3. Performance of Italian mutual funds

- Cesari and Panetta, 2002, The performance of Italian equity funds, Journal of Banking and Finance, vol 26, pp. 99-126.

- They analyze Italian equity funds over the period 1985-1995.

- Their sample contains all funds that have existed over the period, it's free of survivorship bias!

- They address the issue of selectivity and market timing.

- They conduct the analysis on net (of fees) and gross returns

Italian equity funds

Table 1
Summary statistics of Italian equity funds[a]

Year	N	NAV	Management fees	Net returns	Gross returns
1984	6	259	1.05	28.2	29.2
1985	20	6470	1.08	42.4	43.5
1986	29	38,489	1.02	27.4	28.5
1987	35	42,942	1.03	−13.2	−12.1
1988	52	32,770	1.09	14.2	15.3
1989	61	30,059	1.20	13.0	14.2
1990	69	27,791	1.28	−11.1	−9.9
1991	78	24,155	1.26	7.3	8.6
1992	82	19,011	1.40	2.9	4.2
1993	88	20,430	1.45	30.5	32.1
1994	100	33,665	1.48	0.6	2.1
1995	109	33,904	1.42	0.1	1.5

[a] N is the number of funds operating at the end of each year. NAV is the annual average total net asset value (in billion lira) of the funds operating in each year. Management fees is the median value of the fees paid by the funds to the management companies as a percentage of their NAV. Net returns are the funds' returns computed including dividends and bank fees. Gross returns are net returns plus management fees. The returns are yearly averages of annualized monthly returns.

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Models used to measure performance

- Jensen alpha with two different benchmarks:

  $$R_{pt} - R_{ft} = \alpha_p + \beta_p (R_{mt} - R_{ft}) + \varepsilon_{pt}$$

  - Equally-weighted Milan Stock Exchange ptf.
  - Value-weighted Milan Stock Exchange ptf.

- Two-index benchmark with bond index to reflect holdings of bonds in funds:

  $$R_{pt} - R_{ft} = \alpha_p + \beta_{mp}(R_{Mt} - R_{ft}) + \beta_{Bp}(R_{Bt} - R_{ft}) + \varepsilon_{pt}$$

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- Five factors APT-type model (5 factors estimated with max. likelihood over all italian stocks:

$R_{pt} - R_{ft} = \alpha_p + b_{i1}(R_{1t} - R_{ft}) + b_{i2}(R_{2t} - R_{ft}) + ... + + b_{i5}(R_{15} - R_{ft}) + \varepsilon_{pt}$

- Fama-French 3 factor model:

$R_{pt} - R_{ft} = \alpha_i + b_0(R_{mt} - R_{ft}) + b_1 SMB_t + b_2 HML_t + \varepsilon_{it}$

Results for all funds

Model	Net returns	Gross returns	R^2
EW-MSE	1.09	2.41	0.87
EW-MSE+bonds	0.07	1.39	0.90
VW-MSE	0.90	2.23	0.92
VW-MSE+bonds	0.10	1.42	0.94
5 factor model	0.90	1.22	0.94
FF 3 factors model	1.09	2.41	0.93

Results for single funds (significant α)

Model	Net ret.		Gross ret.	
	+	-	+	-
EW-MSE	16	2	26	2
EW-MSE+bonds	9	8	15	3
VW-MSE	18	4	32	2
VW-MSE+bonds	11	6	21	3
5 factor model	7	5	16	3
FF 3 factors model	16	4	34	2

Market timing performance measures

- Quadratic performance measures

$$R_{pt}-R_{ft}=\alpha_p + b_p(R_{mt}-R_{ft}) + \gamma_p(R_{mt}-R_{ft})^2 + \varepsilon_{pt}$$

- Henriksson-Merton performance measures

$$R_{pt}-R_{ft}=\alpha_p + b_p(R_{mt}-R_{ft}) + \gamma_p\max(0,-(R_{mt}-R_{ft}))+\varepsilon_{pt}$$

Results for quadratic regressions
(γ for gross returns)

Model	γ	significant γ	
		+	**-**
EW-MSE	-0.08	1	18
EW-MSE+bonds	−0.08	1	21
	2.99	6	2
VW-MSE	-0.11	7	17
VW-MSE+bonds	-0.08	5	15
	-0.98	4	11
5-factor model	-0.04	6	19
FF 3 factors model	-0.11	7	18

Results for alpha are not altered by the inclusion of a timing measure

Results for H-M regressions
(γ for gross returns)

Model	γ	significant γ	
		+	**-**
EW-MSE	-0.04	1	17
EW-MSE+bonds	−0.02	1	14
	0.04	2	1
VW-MSE	-0.03	6	13
VW-MSE+bonds	-0.01	6	8
	-0.24	1	11
5-factor model	-0.01	8	10
FF 3 factors model	-0.03	6	9

Results for alpha are not altered by the inclusion of a timing measure

Conclusions

- For net returns, alpha is not significantly different from zero, but positive and significant for gross returns -> markets are efficient

- No market timing!

4. Performance of Japanese mutual funds

- Cai, Chan and Yamada, 1997, The performance of Japanese mutual funds, Review of Financial Studies, vol 10, no 2, pp. 237-273.

- Investigate the performance of mutual funds over the period 1981-1992

- 800 open-funds were available over the period. They analyze two different categories: all funds and well diversified Japanese equity funds.

- Market portfolio includes stocks, corp. and gov. bonds

Data

Analyze different portfolio of funds

- 800 funds (all funds)
- 64 funds with at least 97 observations (8 years)
- 190 equity oriented funds
- 13 equity funds with at least 97 observations (8 years)

Summary statistics (Jan 81-Dec 92)

	Mean return (%per annum)	Standard deviation	Mean excess return	Sharpe measure
All category				
vw800	1.73	14.67	-3.95	-0.269
ew800	2.41	13.15	-3.27	-0.249
vw64	1.23	14.39	-4.45	-0.309
ew64	2.13	13.51	-3.55	-0.263
Well-diversified Japanese equity funds				
vw190	-0.127	17.73	-5.81	-0.328
ew190	1.26	16.87	-4.43	-0.262
vw13	2.09	17.70	-7.77	-0.439
ew13	0.55	16.41	-5.13	-0.313
Value-weighted index	8.91	13.77	3.22	0.234
Buy-and-hold 30	14.85	21.98	9.17	0.417
Bond index	7.78	3.89	2.09	0.538
Gensaki rate	5.68	0.38	NA	NA

Jensen's alpha results

	Unconditional		Conditional	
	α	R^2	α	R^2
All category				
vw800	-0.587	0.810	-0:588	0.843
ew800	-0.501	0.795	-0.488	0.836
vw64	-0.611	0.731	-0.638	0.778
ew64	-0.520	0.726	-0.522	0.773
Well-diversified Japanese equity funds				
vw190	-0.795	0.808	-0.795	0.830
ew190	-0.668	0.826	-0.681	0.852
vw13	-0.937	0.704	-0.931	0.750
ew13	-0.701	0.734	-0.737	0.783

Additional results

- Similar results are obtained with FF 3 factor model, unconditionally and conditionally

- No timing skills

- Results are robust by subperiods and when grouped by company

Conclusions

- Strong risk-adjusted underperfomance of Japanese funds over the period!

- Could partly be due to tax-dilution effects (see Goetzmann et al. 2001, JB)

5. Other results

Article	Period	Type of fund	Returns	Country	Issue addressed	Model used	Result
Lhabitant (2001)	1977-1999	Equity funds (60)	Net	Switzerland	Selectivity/Timing	Uncond 1-factor	No skills
Grewe Stehle (2001)	1973-1998	Equity funds (18)	Net	Germany	Selectivity	Uncond 1-factor.	Underperformance
Dahlquist, Engström and Soderlind (2000)	1992-1997	Equity, Bond and Money market funds (210)	Net	Sweden	Selectivity	Uncond. & Cond. 1-factor	No Skills except for equity funds slightly positive
Silva, Cortez and Armada (2003)	1994-2000	Bond funds (638)	Net	Europe	Selectivity	Uncond. & Cond. 1/3-factors	Underperformance, a few funds are positive.
Deaves (2004)	1988-1998	Equity funds (300)	Net	Canada	Selectivity	Uncond 1-5 factors Cond 1 factor	Underperformance
Christensen (2005)	1996-2003	Equity, fixed income funds (47)	Net	Denmark (invested locally and abroad)	Selectivity/Timing/Persistence	Uncond 1-3 factors	No skills

An Analysis of Performance, Persistence and Flows of Thai Equity Funds

Dissertation conducted by **Chakramon Nitibhon, 4682190726**,
to meet requirements of MSF degree, Chulalongkorn University,
Academic year 2004.

November 5, 2010   41

Why Thailand?

- Thai mutual fund industry is considered as *"emerging",* of which very few researchers have been able to focus on.
- Scattering findings of previous studies - only rough conclusion could be drawn.

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What has already been done…

- Plabplatern (1997) (63 funds during Q1 1993 - Q2 1997)
    - Almost all funds have selectivity skills.
    - Half of the funds have timing ability.
- Sakranan (1998) (34 funds during Dec. 31, 1994 – Dec. 31, 1997)
    - Only 2 funds have selectivity skills.
    - All funds have timing ability.
    - She found no persistence in performance.
- *NOTE: Even though the study periods overlapped, conclusions drawn are contrasting each other !?!*

What has already been done…(cont.)

- Pornchaiya (2000) (funds existed during Jan. 1996 - June 1999) found that almost all funds do not have positive Jensen measure.
- Srisuchart (2001) studied market timing of closed-end funds during Jan. 1990 - May 2000 and found that funds had timing direction that is opposite to the market movement – *unreliable!!!*

What has already been done…(cont.)

- Groatong (2001) studied momentum investing of 45 closed-end equity funds in 1995 to 2000.
  - Funds buy prior-month momentum stocks.
- Nerngchamnong (2003) (58 open-end equity funds existed during Jan. 2001 – Dec. 2002) found that, for bear market, size is positively correlated with performance of funds.

So, what's the story of Thai funds' performance?

- Issues that previous studies have not yet discussed.
  - Controversial issue on managers' skills
  - Does 1-year momentum drive funds' returns? (first discussed in JT 1993)
  - Persistence in performance
  - Smartness of investors
  - Factors to induce flows

Advantage of this study - Exquisite Dataset

- I utilize the longest data horizon available from the AIMC (*survivorship bias-free* for approx. 5 yr period) -- none of any researchers have ever done.

- I also have *private information* about portfolio holdings (30 funds) -- revealed on a quarterly basis.

Problem review

- "Let your money do its job through mutual funds"-- excessive campaigns from govt.

- TNA of equity funds worth 73 billion baht, account for 1.75% of SET total market cap!!!

- Sluggish response due to lack of good PEVA.

Research question and objectives

- Could managers provide excess return on benchmark portfolios?
- Objective: aimed at evaluating and attributing Thai equity funds.

Hypotheses

- *Hypothesis 1* Managers can successfully earn abnormal returns compared to benchmark portfolio with significance.
- *Hypothesis 2* Winning funds employ momentum strategies, buying stocks that have high returns in the past.
- *Hypothesis 3* Managers adjust their portfolios according to changing macroeconomic conditions.

Hypotheses (cont.)

- **Hypothesis 4** Persistence lasts at least one year.
- **Hypothesis 5** Managers have selective skills. They invest in stocks that outperform their characteristics.
- **Hypothesis 6** Managers have timing skills, buying and selling stocks at the right time.
- **Hypothesis 7** Investors chase winning funds. In other words, winning funds earn positive net inflows in the test year while losing funds do not.

Scope of study and data

- The scope of this study is limited to equity funds in Thailand that existed during 2000 – 2004.
- **NAV data** Monthly TNA and NAV of all equity funds existing during June 2000 to August 2004 *(survivorship bias-free)*
- **Holdings data** Stockholdings data of 30 funds from 2 mutual fund companies starting from the end of Q1, 2000 to the end of Q2, 2004.

Data (cont.)

- *Other data*
  - Stock prices, size of firm, book-to-market value, market return and SET dividend yield are available from Datastream®.
  - Risk free rate (14-day repurchase rate) and yield spread between 14-day REPO and 10-year government bond comes from the statistics table from the Bank of Thailand.
  - Earnings announcement date of stocks held by funds are obtained from SETSMART system.

Methodologies

Traditional model: CAPM

- Traditional Jensen measure

$$r_{j,t+1} = \alpha_{j\text{TRADITIONAL}} + \beta_j r_{m,t+1} + \varepsilon_{j,t+1}$$

- Note: Use monthly returns for calculation

Ferson-Schadt conditional model

- Conditional Jensen measure

$$r_{j,t+1} = \alpha_{j\text{CONDITIONAL}} + b_{1j} r_{m,t+1} + b_{\text{DIV}_j}(\text{DIV}_t \cdot r_{m,t+1})$$

$$+ b_{\text{RF}_j}(\text{RF}_t \cdot r_{m,t+1}) + b_{\text{SP}_j}(\text{SP}_t \cdot r_{m,t+1}) + \varepsilon_{j,t+1}$$

- DIV_t is the SET dividend yield.
- RF_t is the 14-day repurchase rate.
- SP_t is the spread between 10-yr govt. bond and 14-day REPO.

Carhart 4-factor model

$$r_{j,t+1} = \alpha_{CARHART\ j} + b_j RMRF_{t+1} + s_j SMB_{t+1} + h_j HML_{t+1} + p_j PR1YR_{t+1} + e_{j,t+1}$$

How to construct SMB and HML

- On Dec. 31 every year, stocks traded are ranked based on their *sizes*. *B* and *S* portfolios contain stocks above and below 50 percentile breakpoint.
- Stocks in each portfolio are then sorted on *BtM*.
  - *H* portfolio contains stocks above 70 percentile breakpoint.
  - *N* portfolio contains stocks above 30 percentile breakpoint but below 70 percentile breakpoint.
  - *L* portfolio contains stocks below 30 percentile breakpoint

How to construct SMB and HML (cont.)

- I now get 6 value-weighted portfolios: B/H, B/N, B/L, S/H, S/N, and S/L.
- SMB and HML are equal-weighted portfolios, which are calculated as
  - SMB = ((S/H – B/H) + (S/N – B/N) + (S/L – B/L)) / 3
  - HML = ((S/H – S/L) + (B/H – B/L)) / 2

How to construct PR1YR

- Every month, stocks are ranked on 11-month return (lagged 1-month) in descending order.
- PR1YR is an equal-weighted portfolio constructed by longing on top 30% and shorting on bottom 30%.
- PR1YR is recalculated monthly.

Characteristic-based performance measure

- This measure utilizes portfolio holdings data to detect managers' skills before expenses are deducted.
- Methodology introduced by DGTW 1997

Forming benchmarks

- First, benchmarks must be formed.
- On June 30 every year, stocks traded are sorted based on their **sizes** and are divided into 3 portfolios.
- Stocks in each portfolio are then sorted into 3 sub-portfolios based on their **BtM**.
- Stocks in each sub-portfolio are then sorted into 3 sub-portfolios based on their previous 11-month return lagged one month -- **momentum**.

Forming benchmarks (cont.)

All stocks traded on the exchange on June 30

3 (Biggest)
2
1 (Smallest)

Sorted on Size

3 (Highest)
2
1 (Lowest)

Sorted on BtM

3 (Highest)
2
1 (Lowest)

Sorted on Momentum

- I then have 3 x 3 x 3 = 27 benchmarks (value-weighted portfolios).
- These 27 portfolios have approx. equal number of stocks.

CS measure *- selectivity skills in picking stocks that beat their benchmarks*

$$CS_t = \sum_{j=1}^{N} w_{j,t-1}(R_{j,t} - R_t^{b_{j,t-1}})$$

- $w_{j,t-1}$ is the portfolio weight on stock j at the end of quarter t-1

- $R_{j,t}$ is the quarter t buy-and-hold return of stock j

- $R_t^{b_{j,t-1}}$ is the quarter t buy-and-hold return of the characteristic-based passive portfolio that is matched to stock j during quarter t-1.

CT measure - *ability to time styles of stocks that are going to perform well in the next year*

$$CT_t = \sum_{j=1}^{N} (w_{j,t-1} R_t^{b_{j,t-1}} - w_{j,t-5} R_t^{b_{j,t-5}})$$

- $R_t^{b_{j,t-5}}$ is the quarter t return of the characteristic-based benchmark portfolio that is matched to stock j during quarter t – 5.

AS measure - *how styles invested last year pay off*

$$AS_t = \sum_{j=1}^{N} w_{j,t-5} R_t^{b_{j,t-5}}$$

- Gross return (before expenses are deducted) = CS + CT + AS

Earnings announcement dates analysis

- Stocks that are going to perform well should have greater abnormal returns during the earnings announcement date than those underperformers.
- Abnormal returns during the 3-day window around earnings announcement dates of stocks held by funds are observed.

Raw return

$$\text{Return} = 4 \cdot \frac{1}{T} \sum_{t=1}^{T} \frac{1}{N} \sum_{i} \frac{1}{K_i} \sum_{j} r_{ij,t}$$

- $r_{ij,t}$ = return of a stock held by a fund during the [-1,+1] trading day interval around each subsequent earnings announcement date
- j = number of stocks held by fund at a particular portfolio holdings disclosure
- K_i = holdings of fund i from 1 to K_i (e.g. 4 times / yr. for quarterly disclosure)
- N = number of funds at a particular portfolio holdings disclosure
- T = number of years the data is available

Market-Adjusted Return (MAR)

$$MAR = 4 \cdot \frac{1}{T}\sum_{t=1}^{T}\frac{1}{N}\sum_{i}\frac{1}{K_i}\sum_{j}(r_{ij,t} - r_{m,t})$$

- $r_{m,t}$ = return of the market during the [-1,+1] trading day interval around each subsequent earnings announcement date of a certain stock held by fund

Benchmark-Adjusted Return (BAR)

$$BAR = 4 \cdot \frac{1}{T}\sum_{t=1}^{T}\frac{1}{N}\sum_{i}\frac{1}{K_i}\sum_{j}(r_{ij,t} - r_{b,t})$$

- $r_{b,t}$ = return of the benchmark that has the same characteristics in terms of size, BtM and momentum as the stock during the [-1,+1] trading day interval around each subsequent earnings announcement date of the stock held by fund

Flows estimation

$$\text{FLOWS}_{i,t} = \frac{\text{TNA}_{i,t} - \text{TNA}_{i,t-1} \times (1 + \text{R}_{i,t})}{\text{TNA}_{i,t-1}}$$

- $\text{TNA}_{i,t}$ = total net assets of fund at time t
- $\text{TNA}_{i,t-1}$ = total net assets of fund at time t-1
- $\text{R}_{i,t}$ = return earned during time t

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Results

Please refer to attached sheets
at the end of your handout...

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Hypotheses revisited

- *Hypothesis 1* Managers can successfully earn positive abnormal returns -- REJECTED.
- *Hypothesis 2* Winning funds employ momentum strategies -- REJECTED.
- *Hypothesis 3* Managers adjust their portfolios according to changing macroeconomic conditions -- ACCEPTED.

Hypotheses revisited (cont.)

- *Hypothesis 4* Persistence lasts at least one year -- REJECTED.
- *Hypothesis 5* Managers have selective skills -- ACCEPTED.
- *Hypothesis 6* Managers have timing skills -- ACCEPTED.
- *Hypothesis 7* Investors chase winning funds -- REJECTED.

Rules of thumb for investing in Thai equity funds

- **Rule 1:** Even if you think you have already diversified, DO diversify further.
- **Rule 2:** DO NOT chase winners
- **Rule 3:** DO NOT follow the money

Conclusion and Discussion

Conclusion

- Thai equity funds generate satisfying returns in relation to the market with lower volatilities (the Sharpe measure of funds exceeds the Sharpe measure of the market).
- Funds, on average, do not provide positive and significant abnormal returns compared to the benchmark.

Conclusion (cont.)

- During the entire period, on composition of the value-weighted net return of 19.63 %/yr., return generated from the managers' stock selection skills is 0.79 %. Timing abilities also account for 6 %. *(Though both are insignificant.)*
- Nevertheless, the selective skills are wiped away on the equal-weighted basis.
- Good managers are managing large funds.

Conclusion (cont.)

- Short-term momentum of up to the previous quarter helps boost fund returns.
- The reason why prior-year momentum does not drive returns is due to the fact that funds sell winners of the previous quarter significantly.
- This selling pressure obstruct the emergence of 1-year momentum phenomena.

Conclusion (cont.)

- When the earnings announcement date analysis is conducted, managers' superior stock selection skills diminish.
- Managers cannot spell "persistence".
- Past year return does not induce flows.
- Investors are neither smart nor well-informed.

Discussion – what is left for successors

- Factors to induce flows are yet to be determined.

- Expenses charged and turnover ratios should also be analyzed – manually collectible from funds' annual report in PDF format *(could have taken forever !?!).*

- Even though I find that investors are not smart, I do not think that they are dumb -- this issue needs to be thoroughly analyzed.
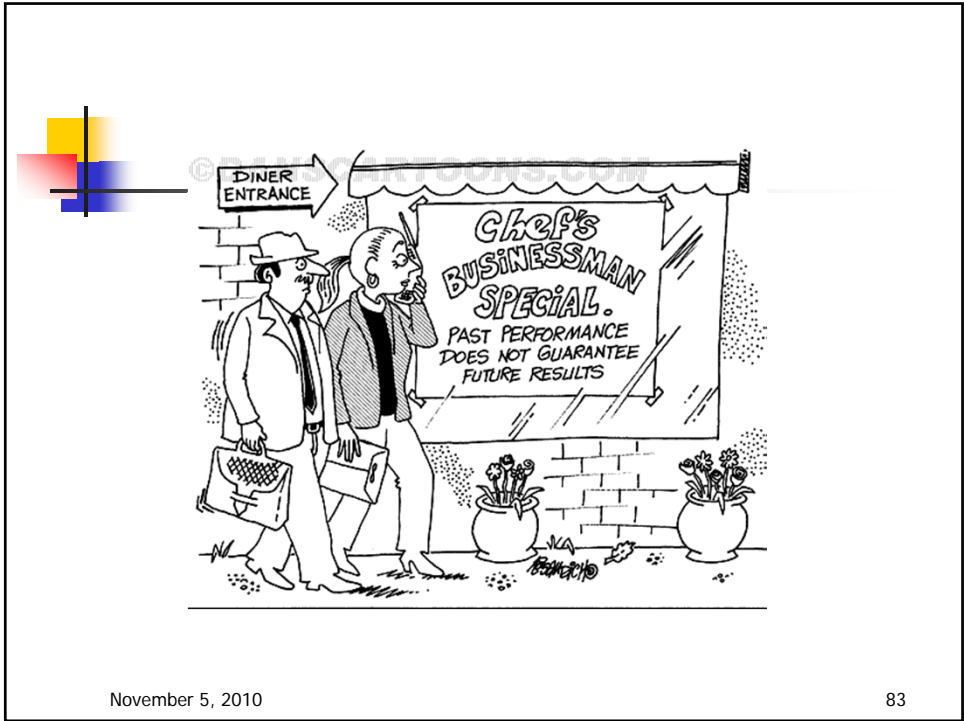
Suggestion – SEC and AIMC, please listen!

- Data needs to be systematically collected esp. NAVs, expense ratios and turnover of assets held.

- Is semi-annual holdings disclosure enough? Please be reminded that investors ARE NOT well-informed.

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