

# Fuel Cost and Freight Revenue Index Movement for various Tanker types

Last 5 Quarters (Index: Jan. 1997=100)

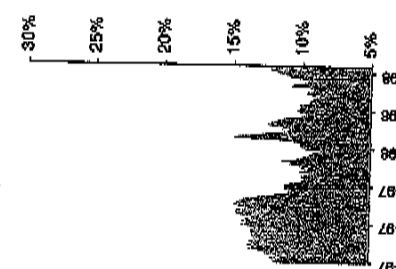
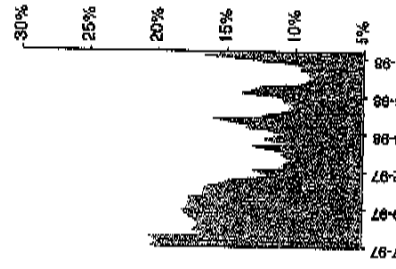
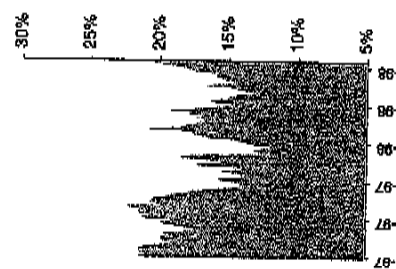
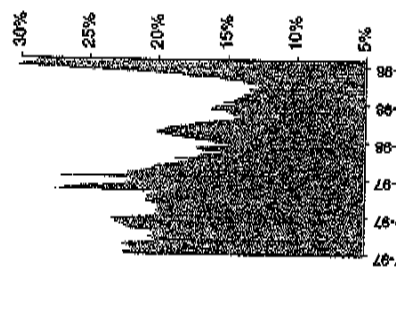
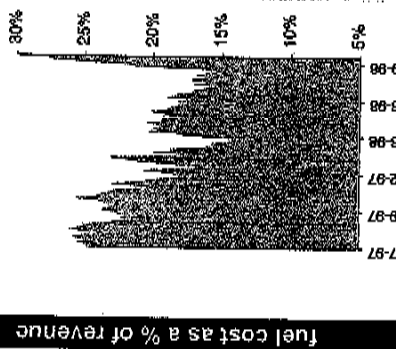
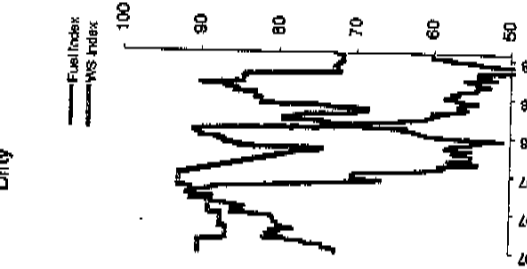
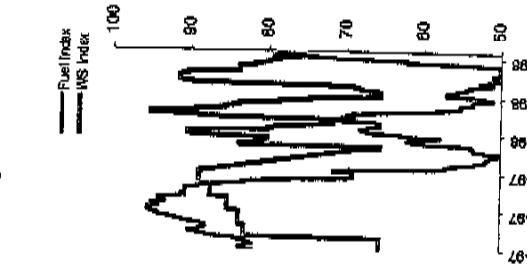
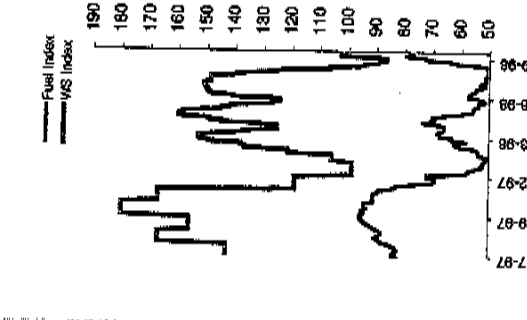
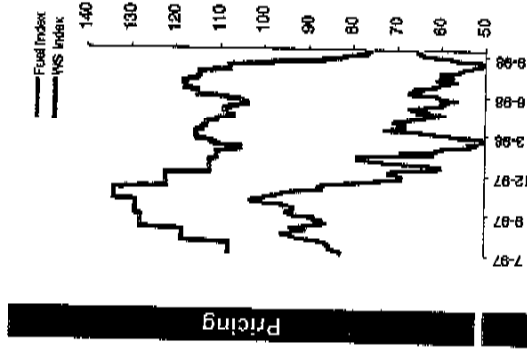
260,000 dwt  
WAF / USG  
NHC

250,000 dwt  
AG / JAP  
NHC

130,000 dwt  
WAF / USAC  
NHC

80,000 dwt  
AG / Sing  
Dfny

80,000 dwt  
NS / USAC  
Dfny



BUNKER PORT HOUSTON

FUJARIAH

PHILADELPHIA

FUJARIAH

ROTTERDAM

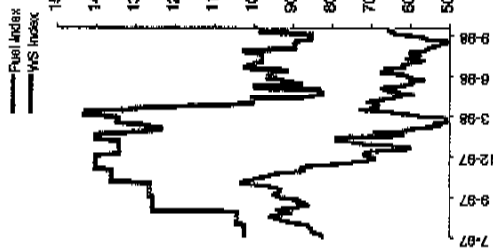
The number on the Y axis show what percent of the base value existed on Jan 1997 (100%). eg. if the index is below 100, it indicates, relative to Jan 1997, a drop in market value and vice versa, if over 100.



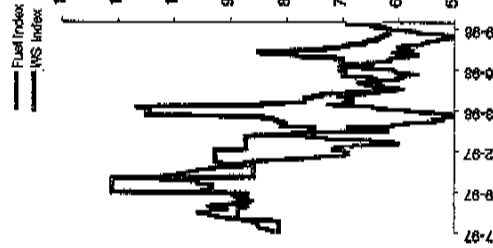
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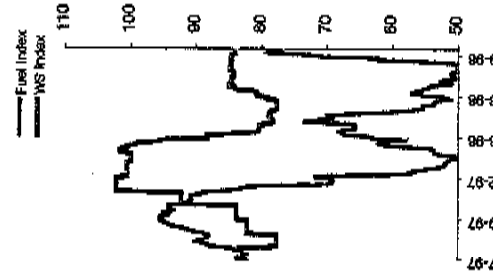
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ECMEX / USG  
NHC



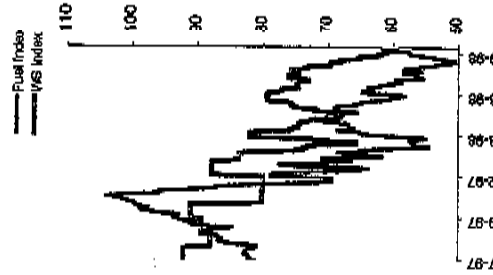
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Carib / USG  
NHC



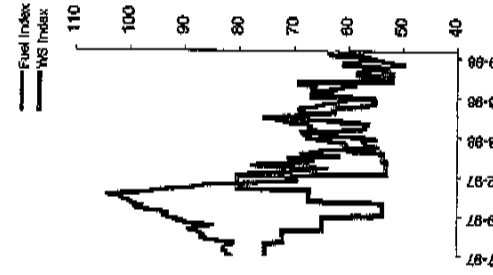
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AG / Jap  
NHC



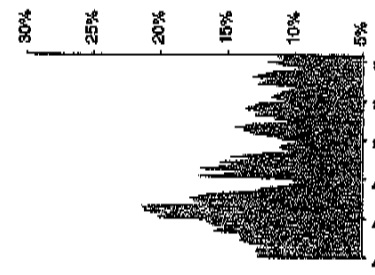
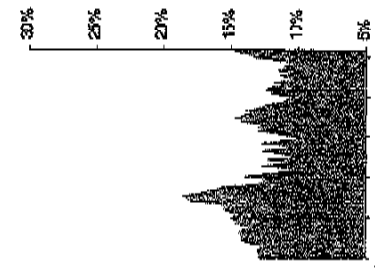
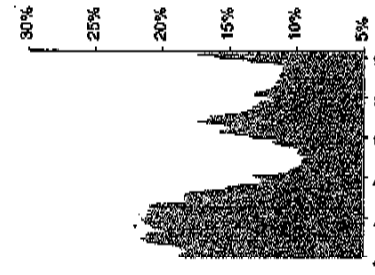
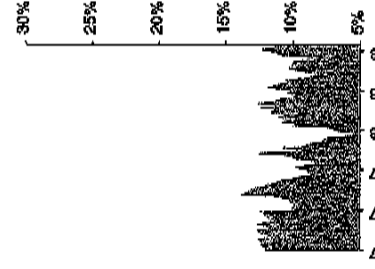
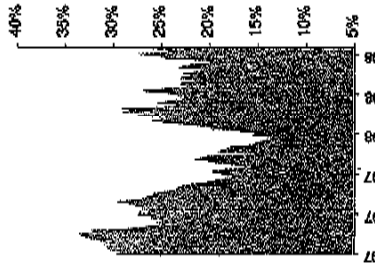
50,000 dwt  
Carib / USAC  
CLEAN



30,000 dwt  
Carib / USAC  
CLEAN



Pricing



BUNKER PORT HOUSTON

HOUSTON

HOUSTON

FUJARIAH

VENEZUELA

VENEZUELA

The number on the Y axis show what percent of the base value existed on Jan 1997 (100%). Eg. If the index is below 100, it indicates, relative to Jan 1997, a drop in market value and vice versa if over 100.



New York  
April 29, 1996

J.P. Morgan Securities Inc.  
Private Banking Derivatives Group  
Ken Shoji (212) 837-3279  
Beth McFadden (212) 837-3275

**JPMorgan**

## Capital Protected Commodity-linked MTN: Oil Range Note

### *Indicative terms and conditions*

**Investment Thesis:** It is JP Morgan's view (see JPMSI "Oil Market" note dated April 17, 1996) that short term political/event risks such as the protracted UN/Iraq negotiations will keep spot WTI in the \$22-\$25 range through May. However, thereafter, fundamental supply and demand issues will take precedence and prices will decline, for a June-December average close to \$18. In order to capitalize on this anticipated differential between the spot and forward prices we propose a range trading strategy based on the average WTI crude oil price over a one year period.

**Risks:** If oil prices trade outside the pre-defined range, the client will only receive his principal at maturity and forego his coupon payment.

**Potential Investors:** Clients who are suitable for trading commodities and desire exposure to the crude oil energy sector.

**Instrument:** 1 year USD note

**Underlying:** WTI Crude Oil (NYMEX)

**Issuer:** Aa1 Issuer or Morgan Guaranty Trust Company of New York, "Nassau Branch"

**Offered Amount:** \$10,000,000 USD

**Minimum Investment Amount:** \$500,000 USD

**Issue Price:** 100%

**Issue Date:** June 1, 1996.

**Maturity Date:** May 31, 1997

**Redemption Amount:** 100% of principal and coupon as defined below.

Results and risks are based solely on hypothetical examples cited; actual results and risks will vary depending on the specific circumstances. Investors are urged to consider carefully whether option products in general, as well as the products discussed herein, are suitable to their needs. The client's counterparty in OTC commodity derivative applications will be Morgan Guaranty Trust Company (AAA/Aa1). Additional information is available upon request. Information herein is believed to be reliable but J.P. Morgan does not warrant its completeness or accuracy. Opinions and estimates constitute our judgment and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. J.P. Morgan may hold a position or act as market maker in the financial instruments of any issuer discussed herein or act as advisor or lender to such issuer. J.P. Morgan Securities Inc. is a member of SIPC and SFA. Copyright 1996 J.P. Morgan & Co. Incorporated. Clients should contact analysts at and execute transactions through a J.P. Morgan entity in their home jurisdiction unless governing law permits otherwise.

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Oil Range Note

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Coupon: Investors will receive a coupon payment based on the following formula:

$15\% * (\# \text{ of Observations in Range}) / 12$ , where

“Observations in the Range” is the number of instances in the year when the “Average NYMEX Settlement Price” per month fixes within the range denominated below:

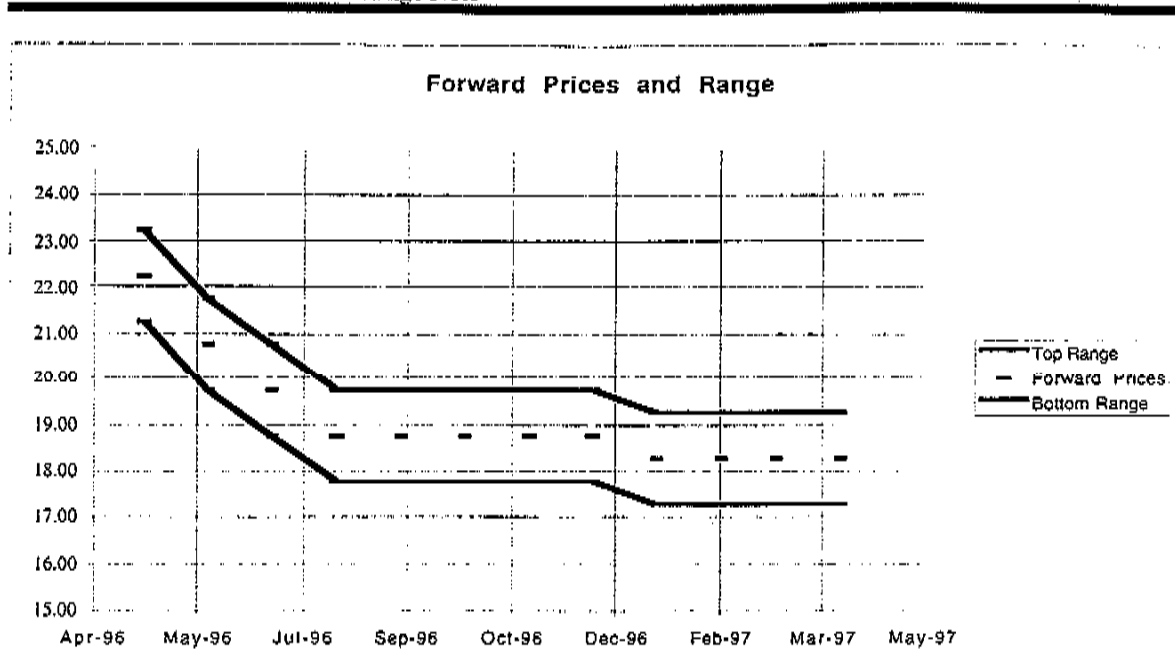
<u>Range</u>	<u>Top</u>	<u>Bottom</u>
May 1996	23.25	21.25
June 1996	21.75	19.75
July 1996	20.75	18.75
August 1996	19.75	17.75
September 1996	19.75	17.75
October 1996	19.75	17.75
November 1996	19.75	17.75
December 1996	19.75	17.75
January 1997	19.25	17.25
February 1997	19.25	17.25
March 1997	19.25	17.25
April 1997	19.25	17.25

The “Average NYMEX Settlement Price” is determined by summing the daily closing prices of the NYMEX contract in the last two minutes of New York trading and averaging them for the month.

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April 10, 1996  
New York

J.P. Morgan Securities Inc.  
Commodity Securities Research  
David A. Seaman (1-212) 648-2157

**JPMorgan**

## *Portfolio Manager's Snapshot*

# Commodity-Linked Investments

## A Total Return Rationale for Collateralized Commodities

*In this report we focus on the intriguing aspects of collateralized commodities, especially 1) their historical countercyclical performance versus financial assets, 2) their outperformance versus most natural resource equities during periods of rising growth and rising interest rates, and 3) their long-term outperformance versus spot commodity prices*

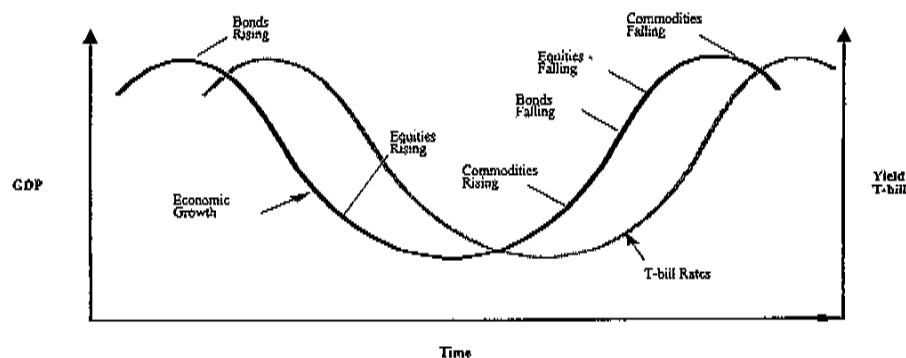
**Collateralized commodities are among a unique set of investable assets that do not follow the financial asset liquidity cycle and thus move out-of-phase with financial assets. Not only have they provided portfolio diversification and inflation protection benefits, but long-term total return performance and volatility have been commensurate with most comparable natural resource equities.**

**Historically, collateralized commodities are shown to have outperformed most natural resource equities during periods of rising growth and rising interest rates and to produce returns in excess of spot commodity returns (which is a reflection of the commodity lending yield inherent in a collateralized commodity financial investment).**

**Primary reasons to invest in commodities include their real asset and portfolio diversification benefits, their performance as total return investments, their use as a possible proxy for emerging market growth, and a desire to increase commodity exposure to more accurately reflect true market capitalization weights (owing to the effect of commodity assets held off the public market, such as sovereign-held commodity assets like OPEC). Though past performance is no guarantee of future results (and collateralized commodities are volatile, cyclical assets), their long-term performance attributes make them a valuable tool in a portfolio manager's active management and diversification strategies.**

**Collateralized commodity returns have moved in a positive relationship to business and monetary cycles, whereas financial assets, such as stocks and bonds, have historically experienced significant adverse interest rate sensitivity.**

### Idealized Business Cycle



*The graph shows an "idealized" business cycle with 1) cyclical economic activity and short-term interest rates, and 2) traditional "turning points" in financial and real asset returns*

## INVESTMENT CONSIDERATIONS

### Positives

**Collateralized commodity returns** have moved in a positive relationship to business and monetary cycles, whereas financial assets, such as stocks and bonds, have historically experienced significant adverse interest rate sensitivity. As Table 1 shows, commodities have tended to perform better in periods of rising growth and interest rates, and equities have performed better in periods of rising liquidity and falling interest rates.

**Table 1: Average Returns for U.S. Asset Classes**  
(annualized monthly returns)

	U.S. CPI	U.S. T-bills	U.S. Bonds	U.S. Equities (S&P 500)	Commodities (JPMCI)
<b>1974-1995: U.S. Interest Rate Cycle</b>					
Rates Rising	7.3%	8.7%	6.0%	4.0%	22.9%
Rates Falling	4.0	6.4	10.8	19.5	6.4
Avg Return	5.5	7.4	8.6	12.5	13.9
<b>1974-3/91: Expansion/Recession - After the Fact First Half, Second Half Analysis</b>					
Expansion 1st Half	4.5	7.4	10.9	16.0	5.0
Expansion 2nd Half	7.1	8.6	2.9	12.2	32.8
Recession 1st Half	8.7	10.7	9.8	(24.3)	11.2
Recession 2nd Half	6.9	8.3	19.3	34.5	3.0

For data sources and description of recession/expansion and interest rate cycle turning points, see Appendix II of full report. All returns shown pre-transaction cost in this table and all following tables.

**International equity returns follow the pattern of U.S. equity market returns:** They perform best in a falling U.S. interest rate environment. Even general equity market returns of natural-resource-rich countries, such as Canada and Australia, follow this global financial liquidity cycle.

**Emerging market growth** may also be positively correlated with commodity market returns over the next decade, as non-OECD consumption provides more than two-thirds of the marginal increase in demand for many commodities through 2005.

**Collateralized commodity returns often exceed returns of natural resource equities** during periods of rising growth, rising credit demands, and rising interest rates. This is not just an artifact of the 1970s but holds for our analyses starting from 1974, 1980 (the commodity cycle peak), and 1984. Long-term average returns on most collateralized commodity and natural resource equities have been quite similar, even though their returns typically move out of phase with each other. Also, long-term volatility of the two asset types has been surprisingly similar.

**Table 2: Average Returns for S&P Equity Subindices vs. JPMCI Commodities**  
(annualized monthly returns)

	S&P Alum Equities	JPMCI Aluminum	S&P Misc. Metals	JPMCI Copper	S&P Domestic Oil	JPMCI Crude Oil
<b>1974-1995: U.S. Interest Rate Cycle</b>						
Rates Rising	0.4%	15.6	4.1	19.9	8.2	34.4
Rates Falling	18.2	6.1	15.1	1.7	12.6	3.3
Avg Return	10.1	10.5	10.1	9.9	10.6	17.4
Volatility	26.5	22.5	30.7	20.0	21.6	30.8

See sections on base metal, energy, and precious metal equities of full report for further details.

**Natural resource equities tend to have more general equity market exposure than commodity exposure** (i.e., more S&P beta than commodity beta). The exception is gold.

Commodity-Linked Investments – Snapshot  
 April 10, 1996  
 New York

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3

**Table 3: Two-Factor Beta Analysis for Natural Resource Equities, 1974-1995**

	S&P 500 Beta	Commodity Beta	
S&P Aluminum Equities	0.92	0.27	Aluminum
S&P Misc Metals Equities	1.12	0.64	Copper
S&P Steel Equities	1.13	0.16	Nickel (1980-95)
S&P Int'l Oil Equities	0.80	0.15	Crude Oil
S&P Dom Oil Equities	0.84	0.22	Crude Oil
S&P Oil & Gas Drillers	1.40	0.40	Crude Oil
S&P Oil Equip & Service	1.06	0.23	Crude Oil
S&P Gold Equities	0.74	1.13	Gold

**Collateralized commodity returns often exceed spot commodity returns**, which merely reflects the embedded commodity lending yield present in any financial investment in a collateralized commodity. Among all the attributes of collateralized commodities, the fact that they are financial investments that produce a yield tends to cause the greatest surprise among portfolio managers. Collateralized commodities are not discounted cash flows of future production, nor are they just another way to receive the spot return. Rather, they are akin to commodity loans. A holder of a collateralized commodity investment has the same economic position as a lender of the commodity and thus receives the return of such a lender.

**Daily trading liquidity**, defined as average daily notional volume, is greater in commodity futures than it is in commodity producer equities. However, long-term liquidity, as measured by current dollar value invested such as open interest or market capitalization, as the case may be, is much greater in the equity markets.

**Table 4: Liquidity Within Different Commodity Investments**

(value: \$ in millions)

	1993 World Production	Average	Average Daily Volume		World Equity Mkt. Cap.
		Open Interest Futures Mkts.	Futures Markets	World Equity Markets	
Primary Commodities	\$1,194,877	\$66,829	\$17,774	\$1,159	\$881,109
Secondary Commodities*	856,467	9,621	2,323	2,653	944,165
<b>Total Commodity</b>	<b>\$2,051,344</b>	<b>\$76,450</b>	<b>\$20,097</b>	<b>\$3,812</b>	<b>\$1,825,274</b>

\*Processed primary commodities.

**Collateralized commodities are among a unique set of investable assets** that do not follow the financial asset liquidity cycle and thus move out of phase with financial assets, though past performance is no guarantee of future results.

## Risks

**Commodity price exposure is volatile.** Commodity prices are notoriously volatile and subject to such unpredictable events as war, weather, labor strikes, and governmental intervention. However, in some ways this unpredictable counter-cyclical volatility is also a key reason for seeking commodity exposure, since it is considered beneficial (academically speaking) because commodity returns are typically **negatively correlated** with financial assets and thus commodities help reduce risks in financial asset portfolios. However, commodity prices are volatile and should be considered to be so in the future. Moreover, commodity prices have been subject to rapid price movement owing to speculative activities.

**Commodity returns, including collateralized commodities, underperform financial asset returns** during periods of low growth and falling interest rates.

**Not all commodity-related assets deliver the same benefits.** Some commodity-related assets are more general equity market- or fixed-income-like than they are commodity-like.

**Explicit transaction costs are higher** on commodity futures and futures-based indices than on equities because of the finite maturities of futures and the need to constantly roll the positions forward to keep a continuous investment (versus a one-time purchase of equities).