# Global ETF Switcher Strategies

Daily Report, 2012-07-21

Global View and Strategies for Monday, July 22 2012

t

**QUANTITATIVE FINANCE & TECHNICAL TRADING**

© Fotis Papailias & Dimitrios Thomakos

www.quantf.com
info@quantf.com

# OVERVIEW

Daily Report, 2012-07-21

| All Around Picks | | |
|---|---|---|
| | ETFs issued before 2007 | ETFs issued after 2007 |
| **Strategy #1** | EWW | DBA |
| **Strategy #2** | SHY | IDX |
| **Strategy #3** | EWW | EWW |
| **Strategy #4** | EWW | DBA |

| Measuring Risk | | |
|---|---|---|
| Region, FX, SEC, B & C | Risk Sentiment Indicator | Risk Share |
| **GLOBAL** | 0% | 3% |
| **NORTH & SOUTH AMERICA** | 0% | 3% |
| **EUROPE** | 0% | 5% |
| **ASIA/AUS/AFR/EURASIA** | 6% | 19% |
| **CURRENCIES** | 0% | 4% |
| **SECTORS** | 38% | 25% |
| **BONDS** | 14% | 21% |
| **COMMODITIES** | 50% | 20% |
| **Total** | 14% | |

**Notes:** Strategies #1 and #2 are the most aggressive. Strategies #3 and #4 are about to provide picks for investors with more conservative tastes. "RF" denotes a risk-free asset (given the fact that there are no cash equivalent ETFs (e.g. SHV) with inception date prior to 2007).

**Risk Sentiment Indicator:** It is the percentage of the ETFs with "OFF" switch/indication among the specified group. "OFF" suggests being out of the market whereas "ON" suggests being in the market. "Total" is a risk sentiment for all ETFs that belong to the underlying universe (please see Appendix for the complete list and categorization).

**Risk Share:** It is an indication of risk level in each group. The more risk, the greater the percentage share. The less risk, the lower the percentage share.

# SECTION 1A: GLOBAL ETF SWITCHER PICKS

### ETFs issued before 2007

| Picks | Strategy #1 | Strategy #2 | Strategy #3 | Strategy #4 |
|---|---|---|---|---|
| GLOBAL (Group 1) | ILF | EFA | ILF | ILF |
| NORTH & SOUTH AMERICA (Group 2) | EWW | DIA | EWW | EWW |
| EUROPE (Group 3) | EWU | EWN | EWU | EWU |
| ASIA/AUS/AFR/EURASIA (Group 4) | EWS | FXI | RF | EWS |
| CURRENCIES (Group FX) | FXA | FXF | FXA | FXA |
| SECTORS (Group SEC) | RF | XLB | RF | RF |
| BONDS (B) | SHY | SHY | SHY | SHY |
| COMMODITIES (C) | DBC | USO | RF | DBC |
| All Around Picks | EWW | SHY | EWW | EWW |

### ETFs issued after 2007

| Picks | Strategy #1 | Strategy #2 | Strategy #3 | Strategy #4 |
|---|---|---|---|---|
| GLOBAL (Group 1) | ILF | EFA | ILF | ILF |
| NORTH & SOUTH AMERICA (Group 2) | EWW | FAS | EWW | EWW |
| EUROPE (Group 3) | EWU | EWN | EWU | EWU |
| ASIA/AUS/AFR/EURASIA (Group 4) | EWS | IDX | SHV | EWS |
| CURRENCIES (Group FX) | FXA | CYB | FXA | CYB |
| SECTORS (Group SEC) | AMLP | XOP | SHV | AMLP |
| BONDS (B) | SHY | BND | SHY | SHY |
| COMMODITIES (C) | DBA | GLL | SHV | DBA |
| All Around Picks | DBA | IDX | EWW | DBA |

**Notes:** "RF" denotes a risk-free asset (given the fact that there are no cash equivalent ETFs (e.g. SHV) with inception date prior to 2007).

Strategies #1 and #2 are the most aggressive. Strategies #3 and #4are about to provide picks for investors with more conservative tastes.

# SECTION 1B: GLOBAL ETF SWITCHER STRATEGIES

## ETFs issued before 2007

| Strategy #1 | Equity | Bond | Equity | Bond | Com. |
|---|---|---|---|---|---|
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.258 | 0.345 | 0.397 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.353 | 0.301 | 0.347 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.231 | 0.357 | 0.412 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.510 | 0.490 | 0.326 | 0.313 | 0.361 |
| CURRENCIES (Group FX) | 0.458 | 0.542 | 0.282 | 0.334 | 0.384 |
| SECTORS (Group SEC) | 0.402 | 0.598 | 0.238 | 0.354 | 0.408 |
| **Strategy #2** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.363 | 0.637 | 0.242 | 0.424 | 0.333 |
| NORTH & SOUTH AMERICA (Group 2) | 0.297 | 0.703 | 0.192 | 0.453 | 0.355 |
| EUROPE (Group 3) | 0.308 | 0.692 | 0.200 | 0.448 | 0.352 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.339 | 0.661 | 0.223 | 0.435 | 0.342 |
| CURRENCIES (Group FX) | 0.317 | 0.683 | 0.207 | 0.445 | 0.349 |
| SECTORS (Group SEC) | 0.298 | 0.702 | 0.192 | 0.453 | 0.355 |
| **Strategy #3** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.310 | 0.413 | 0.277 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.412 | 0.352 | 0.236 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.279 | 0.431 | 0.290 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.402 | 0.598 | 0.287 | 0.427 | 0.287 |
| CURRENCIES (Group FX) | 0.458 | 0.542 | 0.336 | 0.397 | 0.267 |
| SECTORS (Group SEC) | 0.402 | 0.598 | 0.287 | 0.427 | 0.287 |
| **Strategy #4** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.258 | 0.345 | 0.397 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.353 | 0.301 | 0.347 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.231 | 0.357 | 0.412 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.510 | 0.490 | 0.326 | 0.313 | 0.361 |
| CURRENCIES (Group FX) | 0.458 | 0.542 | 0.282 | 0.334 | 0.384 |
| SECTORS (Group SEC) | 0.402 | 0.598 | 0.238 | 0.354 | 0.408 |

**Notes:** Equity, Bond and Commodity represent the respective pick in each strategy in Table 1. The suggested weights for the construction of these strategies are reported above.

Strategies #1 and #2 are the most aggressive. Strategies #3 and #4 are about to provide picks for investors with more conservative tastes.

# SECTION 1B: GLOBAL ETF SWITCHER STRATEGIES

## ETFs issued after 2007

| Strategy #1 | Equity | Bond | Equity | Bond | Com. |
|---|---|---|---|---|---|
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.233 | 0.311 | 0.456 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.322 | 0.275 | 0.403 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.208 | 0.321 | 0.471 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.510 | 0.490 | 0.297 | 0.285 | 0.418 |
| CURRENCIES (Group FX) | 0.458 | 0.542 | 0.255 | 0.302 | 0.442 |
| SECTORS (Group SEC) | 0.486 | 0.514 | 0.277 | 0.293 | 0.430 |
| **Strategy #2** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.562 | 0.438 | 0.433 | 0.337 | 0.230 |
| NORTH & SOUTH AMERICA (Group 2) | 0.546 | 0.454 | 0.417 | 0.346 | 0.236 |
| EUROPE (Group 3) | 0.500 | 0.500 | 0.373 | 0.373 | 0.254 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.595 | 0.405 | 0.466 | 0.317 | 0.217 |
| CURRENCIES (Group FX) | 0.516 | 0.484 | 0.388 | 0.364 | 0.248 |
| SECTORS (Group SEC) | 0.509 | 0.491 | 0.382 | 0.367 | 0.251 |
| **Strategy #3** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.409 | 0.546 | 0.045 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.520 | 0.444 | 0.036 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.374 | 0.578 | 0.048 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.076 | 0.924 | 0.071 | 0.859 | 0.071 |
| CURRENCIES (Group FX) | 0.458 | 0.542 | 0.439 | 0.519 | 0.043 |
| SECTORS (Group SEC) | 0.076 | 0.924 | 0.071 | 0.859 | 0.071 |
| **Strategy #4** | **Equity** | **Bond** | **Equity** | **Bond** | **Com.** |
| GLOBAL (Group 1) | 0.428 | 0.572 | 0.233 | 0.311 | 0.456 |
| NORTH & SOUTH AMERICA (Group 2) | 0.540 | 0.460 | 0.322 | 0.275 | 0.403 |
| EUROPE (Group 3) | 0.393 | 0.607 | 0.208 | 0.321 | 0.471 |
| ASIA/AUS/AFR/EURASIA (Group 4) | 0.510 | 0.490 | 0.297 | 0.285 | 0.418 |
| CURRENCIES (Group FX) | 0.322 | 0.678 | 0.161 | 0.340 | 0.498 |
| SECTORS (Group SEC) | 0.486 | 0.514 | 0.277 | 0.293 | 0.430 |

**Notes:** Equity, Bond and Commodity represent the respective pick in each strategy in Table 1. The suggested weights for the construction of these strategies are reported above.

Strategies #1 and #2 are the most aggressive. Strategies #3 and #4 are about to provide picks for investors with more conservative tastes.

# SECTION 2: GLOBAL ETF SWITCHER VIEW

## Global View

| Region | Country | Ticker | Description | Switch |
|---|---|---|---|---|
| **GLOBAL** | | IEV | S&P Europe 350 Index Fund Profile | ON |
| | | EZU | MSCI EMU Index Fund Profile | ON |
| | | EFA | MSCI EAFE Index Fund Profile | ON |
| | | EPP | MSCI Pacific Ex Japan Index Fund Profile | ON |
| | | ILF | Latin America 40 Index Fund Profile | ON |
| | | EEM | MSCI Emerging Index Fund Profile | ON |
| | | VGK | European ETF Profile | ON |
| | | VWO | Emerging Markets ETF Profile | ON |
| | | VPL | Pacific ETF Profile | ON |
| | | VEU | FTSE All World Ex US ETF Profile | ON |
| | | VEA | Europe Pacific Profile | ON |
| | | BKF | MSCI BRIC Index Fund Profile | ON |
| | | AAXJ | MSCI All Country Asia ex Japan Index Fund Profile | ON |
| | | EDZ | Daily Emerging Markets Bear 3X Shares Profile | ON |
| **NORTH AMERICA** | **USA** | SPY | SPDR S&P 500 Profile | ON |
| | | DIA | Dow Jones Industrial Average ETF Profile | ON |
| | | XLF | Financial Select Sector SPDR Profile | ON |
| | | QQQ | QQQ Tracks This Index: NASDAQ-100 Index | ON |
| | | IWM | Russell 2000 Index Fund Profile | ON |
| | | VTI | Total Stock Market ETF Profile | ON |
| | | SDS | UltraShort S&P500 Profile | ON |
| | | TZA | Daily Small Cap Bear 3X Shares Profile | ON |
| | | TNA | Daily Small Cap Bull 3X Shares Profile | ON |
| | | FAS | Daily Financial Bull 3X Shares Profile | ON |
| | | FAZ | Daily Financial Bear 3X Shares Profile | ON |
| | | VXX | S&P 500 VIX Short-Term Futures ETN Profile | ON |
| | | XIV | Daily Inverse VIX Short-Term ETN Profile | ON |

# SECTION 2: GLOBAL ETF SWITCHER VIEW

## Global View (cont'd)

| Region | Country | Ticker | Description | Switch |
|---|---|---|---|---|
| NORTH AMERICA | CANADA | EWC | MSCI Canada Index Fund Profile | ON |
| | MEXICO | EWW | MSCI Mexico Index Fund Profile | ON |
| SOUTH AMERICA | | EWZ | MSCI Brazil Index Fund Profile | ON |
| | | ECH | MSCI Chile Index Fund Profile | ON |
| EUROPE | | EWD | MSCI Sweden Index Fund Profile | ON |
| | | EWG | MSCI Germany Index Fund Profile | ON |
| | | EWI | MSCI Italy Index Fund Profile | ON |
| | | EWL | MSCI Switzerland Index Fund Profile | ON |
| | | EWN | MSCI Netherlands Index Fund Profile | ON |
| | | EWP | MSCI Spain Index Fund Profile | ON |
| | | EWQ | MSCI France Index Fund Profile | ON |
| | | EWU | MSCI United Kingdom Index Fund Profile | ON |
| ASIA | JAPAN | EWJ | MSCI Japan Index Fund Profile | ON |
| | CHINA | FXI | FTSE China 25 Index Fund Profile | ON |
| | | FXP | Ultrashort FTSE/Xinhua China Profile | ON |
| | INDIA | EPI | India Earnings Fund Profile | ON |
| | | PIN | India Portfolio Profile | ON |
| | REST | EWH | MSCI Hong Kong Index Fund Profile | ON |
| | | EWM | MSCI Malaysia Index Fund Profile | ON |
| | | EWS | MSCI Singapore Index Fund Profile | ON |
| | | EWY | MSCI South Korea Index Fund Profile | ON |
| | | EWT | MSCI Taiwan Index Fund Profile | OFF |
| | | THD | MSCI Thailand Index Fund Profile | ON |
| | | IDX | Market Vectors Indonesia Index ETF Profile | ON |
| | | EIDO | MSCI Indonesia Market Index Fund Profile | ON |
| AUSTRALIA | | EWA | MSCI Australia Index Fund Profile | ON |
| AFRICA | | EZA | MSCI South Africa Index Fund Profile | ON |
| EURASIA | | RSX | Market Vectors TR Russia ETF Profile | ON |
| | | TUR | MSCI Turkey Investable Market Index Fund Profile | ON |
| | | ERUS | MSCI Russia Capped Index Fund Profile | ON |

# SECTION 2: GLOBAL ETF SWITCHER VIEW

## Global View (cont'd)

| Region | Country | Ticker | Description | Switch |
|---|---|---|---|---|
| **CURRENCIES** | | FXE | CurrencyShares Euro Currency Trust Profile | ON |
| | | FXA | CurrencyShares Australian Dollar Trust Profile | ON |
| | | FXF | CurrencyShares Swiss Franc Trust Profile | ON |
| | | FXY | CurrencyShares Japanese Yen Trust Profile | ON |
| | | UUP | DB USD Index Bullish Profile | ON |
| | | CYB | Dreyfus Chinese Yuan Fund Profile | ON |
| | | EUO | UltraShort Euro Profile | ON |
| | | YCS | UltraShort Yen Profile | ON |
| | | CEW | Dreyfus Emerging Currency Fund Profile | ON |
| **SECTORS** | | XLY | Consumer Discretionary Select Sector SPDR Profile | OFF |
| | | XLP | Consumer Staples Select Sector SPDR Profile | ON |
| | | XLE | Energy Select Sector SPDR Profile | ON |
| | | XLV | Health Care Select Sector SPDR Profile | ON |
| | | XLI | Industrial Select Sector SPDR Profile | OFF |
| | | XLB | Materials Select Sector SPDR Profile | ON |
| | | XLK | Technology Select Sector SPDR Profile | ON |
| | | XLU | Utilities Select Sector SPDR Profile | ON |
| | | IYR | Dow Jones U.S. Real Estate Index Fund Profile | ON |
| | | XHB | SPDR Homebuilders ETF Profile | OFF |
| | | GDX | Market Vectors TR Gold Miners Profile | OFF |
| | | XRT | SPDR S&P Retail ETF Profile | OFF |
| | | XOP | SPDR S&P Oil & Gas Explor & Product Profile | ON |
| | | ERY | Daily Energy Bear 3X Shares Profile | OFF |
| | | ERX | Daily Energy Bull 3X Shares Profile | ON |
| | | AMLP | Alerian MLP ETF Profile | ON |

# SECTION 2: GLOBAL ETF SWITCHER VIEW

## Global View (cont'd)

| Region | Country | Ticker | Description | Switch |
|---|---|---|---|---|
| **BONDS** | | SHY | Barclays 1-3 Year Treasury Bond Fund Profile | ON |
| | | TLT | Barclays 20 Year Treasury Bond Fund Profile | ON |
| | | BND | Total Bond Market ETF Profile | ON |
| | | HYG | iBoxx $ HY Corp Bond Fund Profile | ON |
| | | BIL | SPDR Barclays 1-3 Month T-Bill ETF Profile | OFF |
| | | JNK | SPDR Barclays Capital High Yield Bond ETF Profile | ON |
| | | TBT | UltraShort Barclays 20+ Year Treasury Profile | ON |
| **COMMODITIES** | | GLD | SPDR Gold Trust Profile | ON |
| | | IAU | COMEX Gold Trust Profile | OFF |
| | | DBC | DB Commodity Index Tracking Fund Profile | ON |
| | | SLV | Silver Trust Profile | OFF |
| | | USO | United States Oil Fund Profile | ON |
| | | DBA | DB Agriculture Fund Profile | ON |
| | | DZZ | DB Gold Double Short ETN Profile | OFF |
| | | UCO | Ultra DJ-UBS Crude Oil Profile | ON |
| | | SCO | UltraShort DJ-UBS Crude Oil Profile | ON |
| | | ZSL | UltraShort Silver Profile | OFF |
| | | AGQ | Ultra Silver Profile | OFF |
| | | GLL | UltraShort Gold Profile | ON |

# GLOBAL ETF SWITCHER STRATEGIES

## What is this all about?

The "Global ETF Switcher Strategies" or "ETF Switcher" for short is the new product of www.quantf.com website. It consists of a series of daily reports with monthly performance summaries and occasional commentary – all based on the rotating selection of various ETF picks from a large group of almost 100 such instruments. The idea and intuition for this kind of strategy belong to the market timing/rotation investment approach. We will offer two kinds of investment information, a global view (where we will assign an "on" or "off" switch to all ETFs in our selected universe) and a group-based pick of what, our methodology tell us, are the most suitable ETFs to invest in for the coming day.

## Methodology

Market timing and rotation strategies have always been popular approaches for systematic trading and there are many different methods for implementing such strategies. Here we follow a coherent methodology that differs from what we have already seen in the academic literature and in various places that discuss market timing approaches. The gist of the method is to rank our universe of ETFs based on a particular characteristic of their returns and from this ranking to produce "on"/"off" signals (for being in or out of the market) and to offer trading recommendations on ETF groups that are defined from all ETFs that we consider.

"Our universe" consists of about 100 ETFs that are selected based on the geographical location they represent and their average volume. We tried to cover all major geographies and markets and to account for ETFs on equities, bonds and cash equivalents, currencies and commodities. In this way we can take advantage of different types of risk and to allow for more flexible selection across the whole universe and the different groups we define.

On the geographical coverage of our approach we have ETFs that are labeled "global" and represent larger areas and/or sectors not tied to a specific country or market; we then have ETFs for the north and south American markets that include the U.S. and Canada, Mexico, Brazil, Chile and Peru; we then have ETFs for Europe but (mainly for data availability) for developed economies: Austria, Belgium, France, Germany, Italy, Netherlands, Spain, Sweden, Switzerland, United Kingdom and from Eastern Europe Poland. Moving on to Asia and the South Pacific we have ETFs that cover China, Hong Kong, India, Indonesia, Israel, Japan, Philippines, South Korea, Taiwan, Thailand and then Australia and New Zealand. Finally, we consider two ETFs on Russia and one on Turkey.

As noted before, the ETFs that belong to this geographical categorization are mostly equity-based ones or sectorial ones (such as financials). We have three more categories /groupings that we consider. We have a group of currency ETFs for the euro, the Australian dollar, the British pound, the Canadian dollar, the Japanese yen, the Swedish krona and the Swiss franc, as well as an ETF on a U.S. dollar index. We then have a group of bond and cash equivalent ETFs and finally we have a group of ETFs on commodities that include ETFs on gold, silver, oil and gas and one ETF on agriculture.

The above ETFs are split in two categories according to their inception date: all ETFs issued before 2007 and all ETFs issued after 2007 (including the first category as well). A more clear picture is given in the appendix at the end of this document.

## What does this report provide?

The two sections at the beginning offer two different pieces of "advise". In the first section we provide explicit investment recommendations, by combining the "global view" (from the second section) with ETF rankings.

In Section 1A the "best" ETF is picked in three different strategies using the ETFs issued before and after 2007. For each strategy the "All around" pick is given for those that need to track only one instrument.

Strategies #1and #2 are the most aggressive. Strategies #3 and #4 are about to provide picks for investors with more conservative tastes.

In each of these groups the following procedure is followed and reported:

1. A selection from the group of bond and cash equivalent ETFs is made.

2. A selection from the group of commodity ETFs is made.
3. A selection from the group of equity ETFs is made.

In Section 1B we report the weights for each strategy when the bond and commodity are combined with the equity ETF.

In Section 2 we provide the switching signals for our universe of assets. All ETFs are given a market or risk signal, either "on" or "off": when the signal is "on" it means that investing in this ETF for the next day is a plausible option; when the signal is "off" it means that a recommendation to exit the market is issued. It is important to stress out that this "global view" is not geared towards actual investment in the ETFs but rather it intends to show the "global" conditions as they are quantified with our methodology. So, one could use this information to create a variety of strategies: for example, a possibility would be to invest in the geographical region or group when all signals are "on". In this way the "global view" becomes a hybrid of both economic and investment information and allows the end user to tailor the signals to her own investment needs. Furthermore, one can track over time how the signals move around the world or across different asset classes.

**Switcher:** noun (/ˈswiCHər/), is a small railroad locomotive intended not for moving trains over long distances but rather for assembling trains ready for a road locomotive to take over, disassembling a train that has been brought in, and generally moving railroad car around – a process usually known as switching (source: Wikipedia).

**Disclaimer:** The contents of this report are provided for information purposes only. Any and all recommendations shown in this report and its affiliated website are indicative and the authors are not offering to buy or sell or soliciting offers to buy or sell any financial instrument. The views in this publication are those of the authors alone and are subject to change at any time, and they have no obligation to update the opinions, recommendations or the information in this report or its affiliated website. The authors of this report do not accept any liability whatsoever for any direct or consequential loss arising from any use of the information provided. The information in this report is not intended to predict actual results, which may differ substantially from those presented.

**Terms of use:** All material in this report is copyrighted by the authors and is provided "as is". It can be copied and published elsewhere for informational purposes, provided that an explicit statement is given that acknowledges the source of the report. Use of this report for commercial purposes is allowed after written permission from the authors.

# Appendix: ETF Groups Split

## All Groups

| Region | Country | Ticker | Inception | Before 2007 | After 2007 |
|---|---|---|---|---|---|
| **GLOBAL** | | IEV | 2000-07-25 | Group 1 | Group 1 |
| | | EZU | 2000-07-25 | Group 1 | Group 1 |
| | | EFA | 2001-08-14 | Group 1 | Group 1 |
| | | EPP | 2001-10-25 | Group 1 | Group 1 |
| | | ILF | 2001-10-25 | Group 1 | Group 1 |
| | | EEM | 2003-04-07 | Group 1 | Group 1 |
| | | VGK | 2005-03-04 | Group 1 | Group 1 |
| | | VWO | 2005-03-04 | Group 1 | Group 1 |
| | | VPL | 2005-03-04 | Group 1 | Group 1 |
| | | VEU | 2007-03-02 | | Group 1 |
| | | VEA | 2007-07-20 | | Group 1 |
| | | BKF | 2007-11-12 | | Group 1 |
| | | AAXJ | 2008-08-13 | | Group 1 |
| | | EDZ | 2008-12-17 | | Group 1 |
| **NORTH AMERICA** | **USA** | SPY | 1993-01-22 | Group 2 | Group 2 |
| | | DIA | 1998-01-13 | Group 2 | Group 2 |
| | | XLF | 1998-12-16 | Group 2 | Group 2 |
| | | QQQ | 1999-03-10 | Group 2 | Group 2 |
| | | IWM | 2000-05-22 | Group 2 | Group 2 |
| | | VTI | 2001-05-24 | Group 2 | Group 2 |
| | | SDS | 2006-07-11 | Group 2 | Group 2 |
| | | TZA | 2008-11-05 | | Group 2 |
| | | TNA | 2008-11-05 | | Group 2 |
| | | FAS | 2008-11-06 | | Group 2 |
| | | FAZ | 2008-11-06 | | Group 2 |
| | | VXX | 2009-01-29 | | Group 2 |
| | | XIV | 2010-11-29 | | Group 2 |
| | **CANADA** | EWC | 1996-03-12 | Group 2 | Group 2 |
| | **MEXICO** | EWW | 1996-03-12 | Group 2 | Group 2 |

# APPENDIX: ETF GROUPS SPLIT

## All Groups (cont'd)

| Region | Country | Ticker | Inception | Before 2007 | After 2007 |
|---|---|---|---|---|---|
| **SOUTH AMERICA** | | EWZ | 2000-07-10 | Group 2 | Group 2 |
| | | ECH | 2007-11-12 | | Group 2 |
| **EUROPE** | | EWD | 1996-03-12 | Group 3 | Group 3 |
| | | EWG | 1996-03-12 | Group 3 | Group 3 |
| | | EWI | 1996-03-12 | Group 3 | Group 3 |
| | | EWL | 1996-03-12 | Group 3 | Group 3 |
| | | EWN | 1996-03-12 | Group 3 | Group 3 |
| | | EWP | 1996-03-12 | Group 3 | Group 3 |
| | | EWQ | 1996-03-12 | Group 3 | Group 3 |
| | | EWU | 1996-03-12 | Group 3 | Group 3 |
| **ASIA** | **JAPAN** | EWJ | 1996-03-12 | Group 4 | Group 4 |
| | **CHINA** | FXI | 2004-10-05 | Group 4 | Group 4 |
| | | FXP | 2007-11-06 | | Group 4 |
| | **INDIA** | EPI | 2008-02-22 | | Group 4 |
| | | PIN | 2008-03-05 | | Group 4 |
| | **REST** | EWH | 1996-03-12 | Group 4 | Group 4 |
| | | EWM | 1996-03-12 | Group 4 | Group 4 |
| | | EWS | 1996-03-12 | Group 4 | Group 4 |
| | | EWY | 2000-05-09 | Group 4 | Group 4 |
| | | EWT | 2000-06-20 | Group 4 | Group 4 |
| | | THD | 2008-03-26 | | Group 4 |
| | | IDX | 2009-01-15 | | Group 4 |
| | | EIDO | 2010-05-05 | | Group 4 |
| **AUSTRALIA** | | EWA | 1996-03-12 | Group 4 | Group 4 |
| **AFRICA** | | EZA | 2003-02-03 | Group 4 | Group 4 |
| **EURASIA** | | RSX | 2007-04-24 | | Group 4 |
| | | TUR | 2008-03-26 | | Group 4 |
| | | ERUS | 2010-11-10 | | Group 4 |

# Appendix: ETF Groups Split

## All Groups (cont'd)

| FX, SEC | Country | Ticker | Inception | Before 2007 | After 2007 |
|---|---|---|---|---|---|
| **CURRENCIES** | | FXE | 2005-12-09 | Group FX | Group FX |
| | | FXA | 2006-06-21 | Group FX | Group FX |
| | | FXF | 2006-06-21 | Group FX | Group FX |
| | | FXY | 2007-02-12 | | Group FX |
| | | UUP | 2007-02-20 | | Group FX |
| | | CYB | 2008-05-14 | | Group FX |
| | | EUO | 2008-11-24 | | Group FX |
| | | YCS | 2008-11-24 | | Group FX |
| | | CEW | 2009-05-06 | | Group FX |
| **SECTORS** | | XLY | 1998-12-16 | Group SEC | Group SEC |
| | | XLP | 1998-12-16 | Group SEC | Group SEC |
| | | XLE | 1998-12-16 | Group SEC | Group SEC |
| | | XLV | 1998-12-16 | Group SEC | Group SEC |
| | | XLI | 1998-12-16 | Group SEC | Group SEC |
| | | XLB | 1998-12-16 | Group SEC | Group SEC |
| | | XLK | 1998-12-16 | Group SEC | Group SEC |
| | | XLU | 1998-12-16 | Group SEC | Group SEC |
| | | IYR | 2000-06-12 | Group SEC | Group SEC |
| | | XHB | 2006-01-31 | Group SEC | Group SEC |
| | | GDX | 2006-05-16 | Group SEC | Group SEC |
| | | XRT | 2006-06-19 | Group SEC | Group SEC |
| | | XOP | 2006-06-19 | Group SEC | Group SEC |
| | | ERY | 2008-11-06 | | Group SEC |
| | | ERX | 2008-11-06 | | Group SEC |
| | | AMLP | 2010-08-25 | | Group SEC |

# Appendix: ETF Groups Split

## All Groups (cont'd)

| B, C | Country | Ticker | Inception | Before 2007 | After 2007 |
|---|---|---|---|---|---|
| **BONDS** | | SHY | 2002-07-22 | B | B |
| | | TLT | 2002-07-22 | B | B |
| | | BND | 2007-04-03 | | B |
| | | HYG | 2007-04-04 | | B |
| | | BIL | 2007-05-25 | | B |
| | | JNK | 2007-11-28 | | B |
| | | TBT | 2008-04-29 | | B |
| **COMMODITIES** | | GLD | 2004-11-18 | C | C |
| | | IAU | 2005-01-21 | C | C |
| | | DBC | 2006-02-03 | C | C |
| | | SLV | 2006-04-02 | C | C |
| | | USO | 2006-04-10 | C | C |
| | | DBA | 2007-01-05 | | C |
| | | DZZ | 2008-02-27 | | C |
| | | UCO | 2008-11-24 | | C |
| | | SCO | 2008-11-24 | | C |
| | | ZSL | 2008-12-01 | | C |
| | | AGQ | 2008-12-01 | | C |
| | | GLL | 2008-12-01 | | C |