Physical and synthetic ETFs

Joel M. Dickson, PhD
Principal, Investment Strategy Group
The Vanguard Group, Inc.

(Vanguard Investments Canada Inc. is a subsidiary of The Vanguard Group,Inc.)

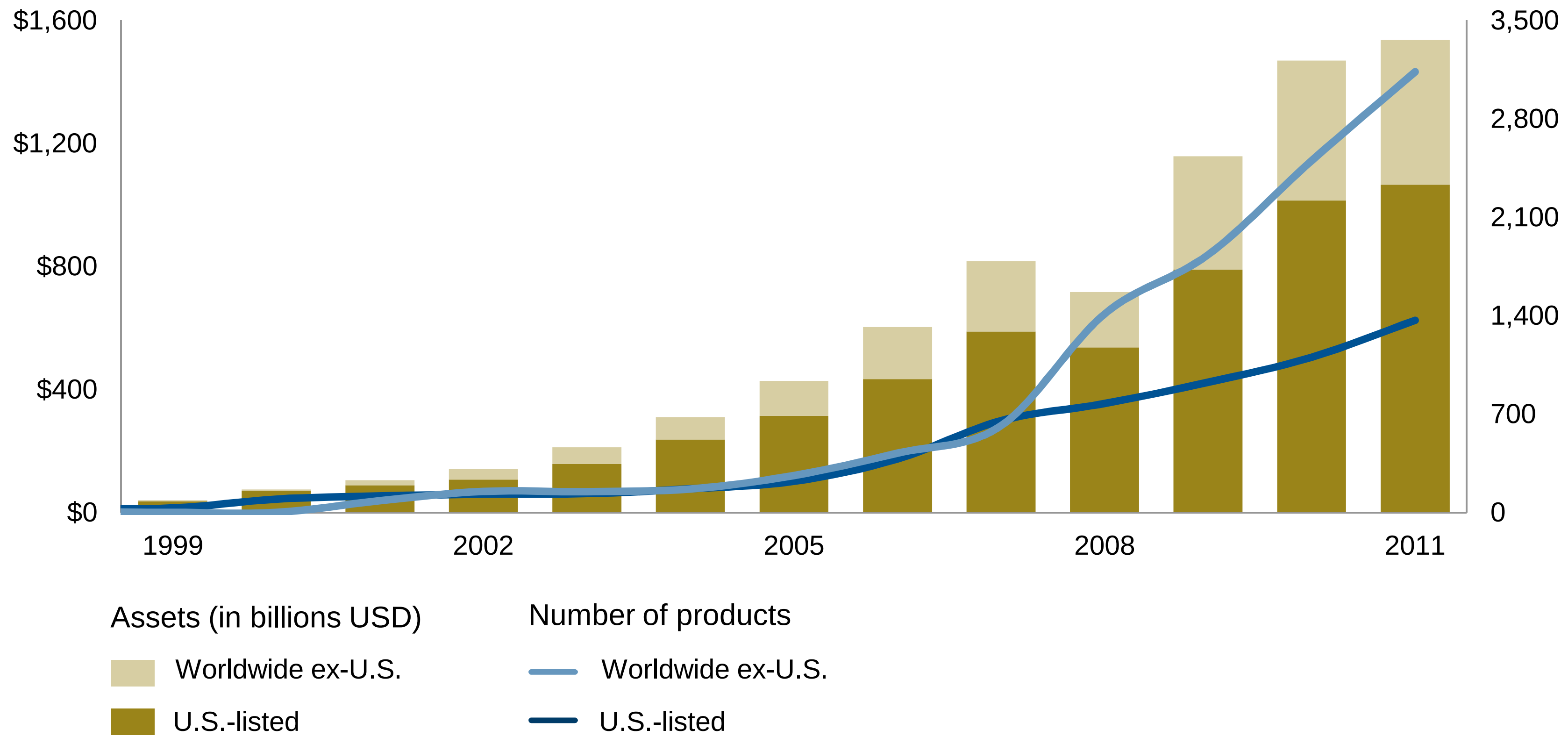
Vanguard®

Exchange-traded products in context

- The popularity of traditional ETFs has led to a number of new products, including ETCs, ETNs, leveraged ETFs and synthetic ETFs
- While physical ETFs remain the predominant structure in the U.S. and Canada, synthetic ETFs have been growing rapidly in Europe
- Both physical and synthetic products have come under scrutiny due to perceptions of hidden or poorly understood risks

ETP marketplace and trends:
The ETP marketplace—worldwide

ETP assets and number of products



Source: Bloomberg, as of 31 December 2011.

ETF basics

Potential benefits of ETFs…

ETFs

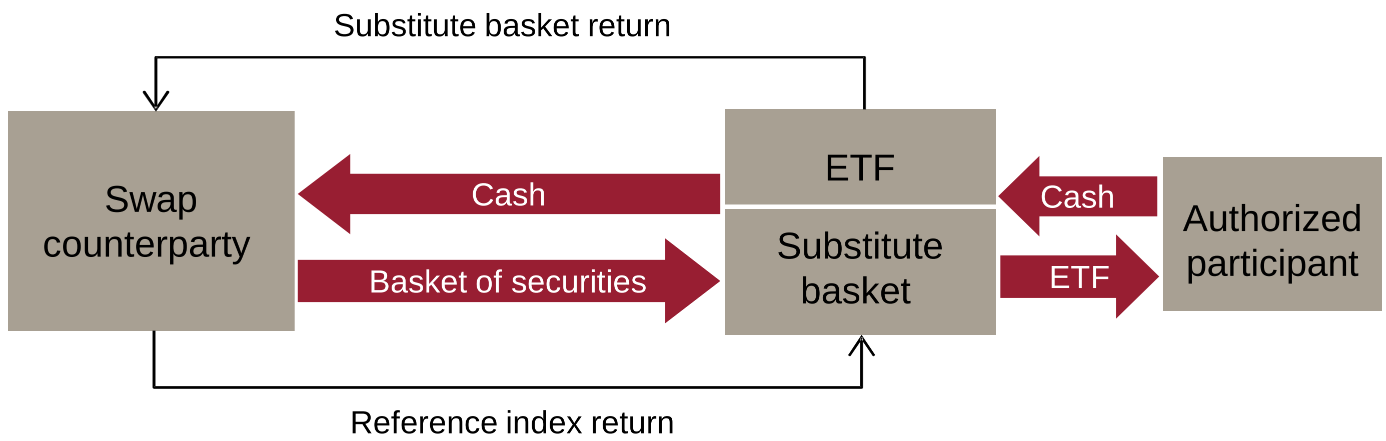
- Consistent performance relative to a benchmark
- Diversification (within a market segment)
- Low expense ratios
- Low turnover
- Style purity

- Continuous pricing
- Trading flexibility
- Low execution costs

Synthetic ETFs use a swap agreement to gain exposure to the benchmark index

Physical ETF

Synthetic ETF



Breakdown of ETF structures

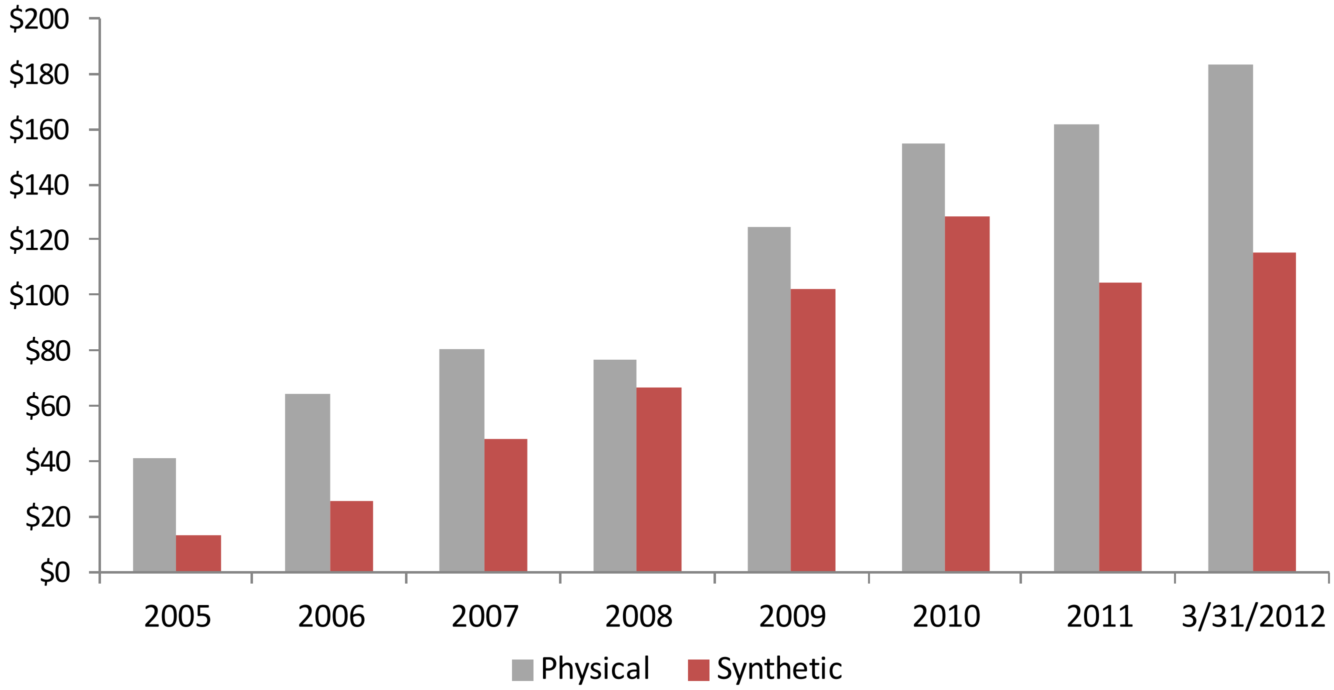
ETF industry by type

	North America	Europe
Percentage of net assets		
Physical	96.2%	55.8%
Swap	3.8%	44.2%
Percentage of ETFs		
Physical	82.5%	36.3%
Swap	17.5%	63.7%

Source: Vanguard and Morningstar data as of 31 May 2011.

European ETF market has also grown quickly

European ETF assets (in billions USD)



Source: Bloomberg.

The ETF industry now encompasses a variety of products

- Some of these products carry additional risks that should be understood by managers and investors
- Leveraged and inverse ETFs usually include some swap exposure as well

	Physical ETFs	Synthetic ETFs	ETNs
Exchange traded	Yes	Yes	Yes
Transparency	Yes	Could be limited	Limited
Underlying holdings	Index securities	Collateral + total return swaps	Debt instrument
Counterparty risk	Limited	Yes	Yes
Sources of tracking error	Index turnover costs treatment of dividends, management fee	Management fee and cost of swap agreements	Management fee
Securities lending inside the fund	Yes	Limited	No

Synthetic ETFs can be attractive for investors and issuers

- Investor attraction
  - Very low tracking error
  - Efficient method for gaining exposure to markets that are illiquid or difficult to access
  - Lower stated expense ratios
- Issuer attraction
  - Ability to use investment banking arm as counterparty to create synergies or relocate unattractive assets
  - Low start-up costs
  - Can be more profitable than physical ETFs

Regulators considering issues with both physical and synthetic ETFs

U.S. Securities and Exchange Commission (SEC)

- Conducting review to evaluate the use of derivatives by investment companies
- Will not approve any new synthetic ETFs until the review is complete

G20's Financial Stability Board (FSB) & International Monetary Fund (IMF)

- Raised concerns about affiliated transactions within synthetic ETFs
- Called into question securities lending within physical ETFs

Hong Kong's financial regulators

- Warned investors about the counterparty risks involved with investing in synthetic ETFs
- Requires all synthetic ETFs to be clearly labeled and have an annotation that states "this is a synthetic ETF"

Synthetic ETFs and securities lending activities have some counterparty risk

General counterparty risks

- Counterparty terminates the swap agreement early and provider has difficulty finding new counterparty
- Price of the swap changes at the end of its term

Default scenarios

- The counterparty defaults on its collateral obligations, leaving assets underfunded (synthetic and physical)
- The counterparty defaults on its swap obligations and the fund has a mismatch between the underlying index and the collateral
- Counterparty default causes collateral assets to be frozen

Collateral quality may matter

- In the event that the counterparty cannot be replaced and the fund must liquidate, the characteristics of the collateral basket will become important
  - Providers have different sets of criteria for what they will accept
  - Contents of collateral baskets are not necessarily publicly available, causing concerns that banks are unloading undesirable assets into these vehicles
  - Collateral may be very different than index securities
- Because of recent scrutiny, providers are becoming more transparent

Investors should consider other factors

- Swap contracts are negotiated over the counter so there is no industry standard
- Some swap-based ETFs may vary considerably from others
  - Structure
  - Transparency
  - Quality of collateral
  - Amount of counterparty exposure
  - Number of counterparties
  - Swap fees
  - Securities lending
- The degree of counterparty risk is not always evident
- Turnover ratios can be much higher than those of physical ETFs

Best practices for reducing ETF counterparty risks

- ✓ A structure that allows direct access to collateral
- ✓ Multiple, independent counterparties that are known to investors
- ✓ Daily collateral reconciliation
- ✓ Over-collateralization of amounts at risk
- ✓ Transparent collateral basket
- ✓ Minimum requirements of collateral quality (liquid securities and/or cash)
- ✓ Information on swap costs

Summary

- ETFs benefits and flexibility have led to strong growth and growing use among many types of investors
- Product innovation has led to questions about ETFs, including suitability, counterparty risks, and market structure
  - More education needed about ETF structure and how they work
  - Counterparty risks are present but can be mitigated through best practices

Disclosures

Commissions, management fees and expenses all may be associated with the Vanguard ETFs. This offering is only made by prospectus. Copies are available from Vanguard Investments Canada Inc. at www.vanguardcanada.ca. Please read the prospectus before investing. ETFs are not guaranteed, their values change frequently, and past performance may not be repeated.

The first date of publication of this presentation by The Vanguard Group, Inc. is May 18, 2012. Vanguard Investments Canada Inc. is providing this presentation for informational purposes only.

The presentation is written primarily in the context of the U.S. market and contains data and analysis specific to the U.S. The opinions expressed in this presentation are those of the individual strategist and do not necessarily represent the opinions of Vanguard. Investments Canada Inc. The opinions are current as of the first date of publication, may change as subsequent conditions vary and may not be updated, supplemented or revised whether as a result of new information, changing circumstances, future events or otherwise.

This presentation is solely for informational and educational purposes and is not an offer to buy or sell or a solicitation of an offer to buy or sell any security, including any security of any ETF or to adopt any particular investment strategy or portfolio strategy for any individual investor. The information is neither investment and/or tax advice, nor is it tailored to the needs or circumstances of any individual investor. Any company, security, index, portfolio, industry or market sector mentioned in this presentation was done so for illustrative purposes only and thus, should not be used as the basis of any specific investment recommendation for any individual investor. Presentations are intended for informational and educational purposes only and do not replace independent professional judgment.

The information contained in this presentation has been compiled by The Vanguard Group ,Inc. from proprietary and non proprietary sources believed to be reliable, but no representation or warranty, express or implied, is made by The Vanguard Group, Inc., Vanguard Investments Canada Inc., its subsidiaries or affiliates, or any other person (The Vanguard Group) as to its accuracy, completeness or correctness. The Vanguard Group takes no responsibility for any errors and omissions contained herein and accepts no liability whatsoever for any loss arising from any use of, or reliance on, this presentation.

Disclosures

Notes on Risk:

Synthetic ETFs may use derivatives in their investment strategy. Synthetic ETFs are not suitable for all investors. Synthetic ETFs are speculative in nature and may involve substantial risk of loss. Vanguard Investments Canada Inc. currently does not offer synthetic ETFs.

All investments, including those that seek to track indexes, are subject to risk, including the possible loss of principal. Diversification or asset allocation does not ensure a profit or protect against a loss in a declining market. Investing in ETFs involves risk, including the risk of error in tracking the underlying index. ETFs are subject to risks similar to those of stocks. Investments that concentrate on a relatively narrow market sector face the risk of higher share-price volatility. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. Stocks of companies in emerging markets are generally more risky than stocks of companies in developed countries. Investments in exchange-traded bond funds are subject to interest rate, credit, and inflation risk. Foreign investing involves additional risks including currency fluctuations and political uncertainty.

FOR FINANCIAL ADVISOR USE ONLY

DO NOT DISTRIBUTE TO INVESTORS OR PROSPECTIVE INVESTORS