Overview

- The Global Economy
- **Understanding the Economy and the Stock Market**
- Understanding the Federal Reserve
- Prices Lead Quantities 1: Inflation Forecasting
- Prices Lead Quantities 2: Europe
- Practical Diversification Tools
“It is not an exaggeration to say that the half-century from 1950 to 2000 was the greatest in history in terms of improvements in the health, prosperity, and welfare of the world’s population. Further, the quarter-century from 1975 to 2000 has no problem in claiming the championship as the best ever.”

—Arnold Harberger
He Was Talking About 2.8% Global GDP Growth

Harberger’s Data:

<table>
<thead>
<tr>
<th>Population</th>
<th>GDP Per Capita</th>
<th>Total GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.6</td>
<td>1.2</td>
<td>2.8</td>
</tr>
</tbody>
</table>

More Recently, “IMF Lowers Growth Forecast” ...

“global growth at 3.1 percent in 2013”
2003-2007 Was an Anomaly, Not the Norm

Back to the Future
Real GDP Growth
Historical and 5 year Forecasts (%)
As of August 2012

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1960-2010 EM</td>
<td>4.8</td>
<td>7.6</td>
<td>5.0</td>
<td>1.8</td>
<td>1.2</td>
<td>1.0</td>
</tr>
<tr>
<td>2003-2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Morgan Stanley, August 2012
Global Growth Has Been Decelerating

Prospects for World GDP Growth
Percent Change

Source: IMF World Economic Outlook October 2013

Prospects for World GDP Growth

- WEO Baseline
- 50% Confidence Interval
- 70% Confidence Interval
- 90% Confidence Interval
- 90% Bands from October 2012 WEO

Global Growth Has Been Decelerating
But That Might Be Nearing an End

Growth Gaining Momentum in the OECD Area

Source: Organization for Economic Cooperation and Development
US: Continued Moderate Expansion

Source: National Bureau of Economic Research
China Outlook is the Most Contentious

Global GDP Growth
Quarter over Quarter | Annualized

- Emerging Market and Developing Economies
- World
- Advanced Economies

Shaded Area Indicates Forecast

6/30/2013

Some proprietary research suggests China is too high

Source: International Monetary Fund Staff Estimates

Real GDP Growth Estimates

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>1.75%</td>
<td>2.75%</td>
</tr>
<tr>
<td>Japan</td>
<td>2.00%</td>
<td>1.25%</td>
</tr>
<tr>
<td>Euro Area</td>
<td>-0.50%</td>
<td>1.00%</td>
</tr>
<tr>
<td>Emerging</td>
<td>5.00%</td>
<td>5.40%</td>
</tr>
<tr>
<td>China</td>
<td>7.80%</td>
<td>7.70%</td>
</tr>
<tr>
<td>World</td>
<td>2.90%</td>
<td>3.60%</td>
</tr>
</tbody>
</table>

Too High
“While many economists now project that China’s average annual economic growth will fall to between 5 and 7 percent a year during the next decade, I expect it to slow even more, perhaps to 3 to 4 percent a year. In modern history, no country that has experienced an investment-driven growth “miracle” has avoided a slowdown (such as Japan’s after 1990) that surprised even the pessimists, and it is hard to find good reasons to think China will be an exception.”

– McKinsey Quarterly, June 2013
But the Rise of the Chinese Consumer Isn’t Going Away

Share of urban households,\(^1\) %

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>Affluent</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Upper Middle Class</td>
<td>54</td>
<td>54</td>
</tr>
<tr>
<td>Mass Middle Class</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Poor</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>

100% = 256 Million 357 Million

1 Figures may not sum to 100%, because of rounding; data for 2022 are projected.
2 Defined by annual disposable income per urban household, in 2010 real terms; affluent, >229,000 renminbi (equivalent to >$34,000); upper middle class, 106,000 to 229,000 renminbi (equivalent to $16,000 to $34,000); mass middle class, 60,000 to 106,000 renminbi (equivalent to $9,000 to $16,000); poor, <$60,000 renminbi (equivalent to <$9,000).

Source: McKinsey Quarterly, June 2013
McKinsey Predictions Continued...

- The price of hard commodities will drop sharply. Perhaps 50% – excluding agricultural commodities

- This will hurt commodity producing countries: Examples include Canada, Russia, Brazil, S. Africa, Australia, Norway

- Industries that profit from building infrastructure or manufacturing capacity will suffer...construction equipment, heavy manufacturing, transportation – shipping

- Countries, especially developing ones like Mexico, that rely heavily for growth on manufacturing will benefit from China’s higher labor costs

- Consumer goods companies in aggregate little affected

Source: McKinsey Quarterly, June 2013
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Milton Friedman’s “Plucking” Model

• The ‘catalyst’ for growth is always present.

• Removing shock is all that’s required

• Recently that meant restoring confidence in the banking system

*The economy comes back on its own once the shock is removed.*
Baseball Analogy (what inning is it?) Does Not Apply

<table>
<thead>
<tr>
<th>REFERENCE DATES</th>
<th>DURATION IN MONTHS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Peak to Trough</td>
</tr>
<tr>
<td><strong>Peak</strong></td>
<td><strong>Trough</strong></td>
</tr>
<tr>
<td>December 1854 (IV)</td>
<td>December 1858 (IV)</td>
</tr>
<tr>
<td>October 1860 (III)</td>
<td>June 1861 (III)</td>
</tr>
<tr>
<td>April 1865 (I)</td>
<td>December 1867 (I)</td>
</tr>
<tr>
<td>June 1869 (II)</td>
<td>December 1870 (IV)</td>
</tr>
<tr>
<td>October 1873 (III)</td>
<td>March 1879 (I)</td>
</tr>
<tr>
<td>March 1882 (I)</td>
<td>May 1885 (II)</td>
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<tr>
<td>March 1887 (II)</td>
<td>April 1888 (I)</td>
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<td>July 1890 (III)</td>
<td>May 1891 (I)</td>
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<td>January 1893 (I)</td>
<td>June 1894 (II)</td>
</tr>
<tr>
<td>December 1895 (IV)</td>
<td>June 1897 (II)</td>
</tr>
<tr>
<td>June 1899 (III)</td>
<td>December 1900 (IV)</td>
</tr>
<tr>
<td>September 1902 (IV)</td>
<td>August 1904 (III)</td>
</tr>
<tr>
<td>May 1907 (I)</td>
<td>June 1908 (II)</td>
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<tr>
<td>January 1910 (I)</td>
<td>January 1912 (IV)</td>
</tr>
<tr>
<td>January 1913 (I)</td>
<td>December 1914 (IV)</td>
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<tr>
<td>August 1918 (III)</td>
<td>March 1919 (I)</td>
</tr>
<tr>
<td>January 1920 (I)</td>
<td>July 1921 (III)</td>
</tr>
<tr>
<td>May 1923 (II)</td>
<td>July 1924 (III)</td>
</tr>
<tr>
<td>October 1926 (IV)</td>
<td>November 1927 (IV)</td>
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<tr>
<td>August 1929 (III)</td>
<td>March 1933 (I)</td>
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<tr>
<td>May 1937 (II)</td>
<td>June 1938 (II)</td>
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<tr>
<td>February 1945 (I)</td>
<td>October 1945 (IV)</td>
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<tr>
<td>November 1948 (IV)</td>
<td>October 1949 (IV)</td>
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<tr>
<td>July 1953 (I)</td>
<td>May 1954 (II)</td>
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<tr>
<td>August 1957 (III)</td>
<td>April 1958 (II)</td>
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<td>April 1960 (II)</td>
<td>February 1961 (I)</td>
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<td>December 1969 (IV)</td>
<td>November 1970 (IV)</td>
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<tr>
<td>November 1973 (IV)</td>
<td>March 1975 (I)</td>
</tr>
<tr>
<td>January 1980 (I)</td>
<td>July 1980 (III)</td>
</tr>
<tr>
<td>July 1981 (III)</td>
<td>November 1982 (IV)</td>
</tr>
<tr>
<td>July 1990 (III)</td>
<td>March 1991 (I)</td>
</tr>
<tr>
<td>March 2001 (I)</td>
<td>November 2001 (IV)</td>
</tr>
<tr>
<td>December 2007 (IV)</td>
<td>June 2009 (II)</td>
</tr>
</tbody>
</table>

Average, all cycles:
- 1854-2009 (33 cycles): 16, 42, 56, 55
- 1854-1919 (16 cycles): 22, 27, 48, 49
- 1919-1945 (6 cycles): 18, 35, 53, 53
- 1945-2009 (11 cycles): 11, 59, 73, 66

Source: NBER
That’s Also How to Think About Stocks

The Long Term Investment Cycle
Gain, Decline, Recovery - The Standard & Poor's 500 Stock Index

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Headlines and Stocks:

Stock Market Recovery Monitor
Standard & Poor’s 500 Stock Index

Headlines During 100%+ Stock Market Gain: Anemic economic growth, jobs growth, high unemployment rates, European debt crisis, Middle East tension, China slowing, Japanese Tsunami, BRICs slowing, unprecedented monetary experimentation

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Historically, market has regained value within 24 Months – average rebound following declines of 10% or more since 1926.

Standard & Poor’s 500

<table>
<thead>
<tr>
<th>Time</th>
<th>Historical Median</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 month</td>
<td></td>
</tr>
<tr>
<td>3 months</td>
<td></td>
</tr>
<tr>
<td>5 months</td>
<td></td>
</tr>
<tr>
<td>6 months</td>
<td></td>
</tr>
<tr>
<td>12 months</td>
<td></td>
</tr>
<tr>
<td>24 months</td>
<td></td>
</tr>
</tbody>
</table>

Past performance does not guarantee future results.

Source: Banc of America Securities – Merrill Lynch US Equity Strategy
That Makes Sense: Current Expansion is About Half as Strong as Normal

Real GDP growth during economic expansions:

Average: 4.0%

Current Expansion: 2.0%

Source: CrandallPierce; IMF
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The Fed Has Created Excess Reserves

Excess Reserves of Depository Institutions (EXCSRESNS)
Source: Federal Reserve Bank of St. Louis

Source: Board of Governors of the Federal Reserve System | 2013 research.stlouisfed.org
From 1929 to 1933 the Federal Reserve stood by and allowed the banking system to collapse as it failed to provide liquidity or act as a lender of last resort.

The Fed has done the opposite in every crisis since and depression has been averted.

It is almost impossible to imagine a central bank response more directly opposite to that of the Great Depression than what we are seeing today.
This is good central banking!

The Fed is acting boldly as lender of last resort, just as it should have done in the 1930s, and failed to do.

Fed Asks Congress for Power to Pay Interest on Reserves Sooner

By Craig Torres – May 6, 2008 23:49 EDT
Core Inflation is in Check

Headline CPI versus Core CPI
Year-over-Year Percent Change

As of July 31, 2013

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Fed: Summer Rates Surge Largely Reversed QE2 and QE3

Term Premium: Difference Between 10-Year U.S Treasury and 3-Month T-bill
January 1, 2010 – September 8, 2013

Source: St. Louis Federal Reserve Bank
Credit Conditions are Improving Despite Higher Rates

“More credit is available, albeit at a higher price...
The price of credit has increased, but so too has its availability”

Source: Deutsche Bank

The demand for credit is rising alongside an easing of credit standards

Shaded Areas Indicate U.S. Recessions

Source: Deutsche Bank
Mortgage interest rates need to rise by another 100 basis points to 5.6% to bring housing affordability in line with its historical average.
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Inflation Signals

Monetary Policy, A Market Price Approach

Manuel H. Johnson
and
Robert E. Keleher
No Inflation Signal From the Dollar

The dollar has been strengthening, not weakening

Source: Federal Reserve Bank of Saint Louis. As of November 1, 2013
That’s Also What the Bond Market is Telling Us
Overview

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Measuring Financial Stress

Interest Rates:
- Effective federal funds rate
- 2-year Treasury
- 10-year Treasury
- 30-year Treasury
- Baa-rated corporate
- Merrill-Lynch High-Yield Corporate Master II Index

Yield Spreads:
- Yield curve: 10-year Treasury minus 3-month Treasury
- Corporate Baa-rated bond minus 3-month Treasury
- Merrill Lynch High-Yield Corporate Master II Index minus 10-year Treasury
- 3-month London Interbank Offering Rate-Overnight Index Swap (LIBOR-OIS) spread
- 3-month Treasury-Eurodollar (TED) spread

Other Indicators:
- J.P. Morgan Emerging Markets Bond Index Plus
- Chicago Board Options Exchange Market Volatility Index (VIX)
- Merrill Lynch Bond Market Volatility Index (1-month)
- 10-year nominal Treasury yield minus 10-year Treasury Inflation Protected Security yield (breakeven inflation rate)
- Vanguard Financials Exchange-Traded Fund (equities)

Source: Federal Reserve Bank of St. Louis
Onto the Outlook: Global Risk is Down

St. Louis Financial Stress Index | STLFSI
December 31, 1993 – October 31, 2013

Source: Federal Reserve Bank of St. Louis

Shaded areas indicate US recessions. 2013 research.stlouisfed.org

Source: Federal Reserve Bank of St. Louis
“A great risk to recovery in the U.S. is a strong dollar and a great risk to fiscal insolvency in Europe is a strong euro. Actions to stabilize the dollar-euro rate (with the Fed supporting the euro when it went, say, below $1.25 and the ECB supporting the dollar when the euro went to $1.35) would remove the instability of the dollar-euro exchange rate as a threat to global prosperity and would benefit the entire world economy.”

-Robert Mundell
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- Prices Lead Quantities 2: Europe
- Current Fed Policies
- Practical Diversification Tools
Practical Diversification Tools

- Stocks and Safe Bonds
- Within Stocks: Value and Growth
- Within Stocks: Sector Constraints
- Using Individual Stocks (but not too many!)
But Not Just Any Bonds!

*The diversified portfolio includes 60% S&P 500 and 40% Intermediate Treasury Bonds.

Source: Standard & Poor's Corporation; Ryan Labs, Inc.: Barclays Capital - Copyright © 2013 Crandall, Pierce & Company. This copyright protected illustration is used with permission. Under no circumstances may this illustration be copied, reproduced or redistributed in whole or in part including the data contained herein, without prior written permission from Crandall, Pierce & Company. The information presented herein was compiled from sources believed to be reliable. It is intended for illustrative purposes only, and is furnished without responsibility for completeness or accuracy. Past performance does not guarantee future results. There is a risk of loss.
Owning Safe Bonds is Important to Manage “Tail Risk”

Stocks and Safe Bonds

5 – 7 Year Municipal Index

S&P 500 Index

Past performance does not guarantee future results. There is a risk of loss.

Source: Bloomberg
And the 2011 Correction

**Stocks and Safe Bonds**

**Period:** 2011 Correction
**June 15, 2001 – June 15, 2012**

![Graph showing stock and bond performance](image)

Vanguard Muni Bond Intermediate Term

S&P 500

Past performance does not guarantee future results. There is a risk of loss.

Source: Yahoo Finance
“Our paper explores the out-of-sample performance of these variables [P/E ratios, dividend payout ratios, price-to-book, credit spreads, yield curves] and finds that not a single one would have helped a real-world investor...Most would have outright hurt. Therefore, we find that, for all practical purposes, the equity premium [overall stock market valuation] has not been predictable.”

- Review of Financial Studies, July 2008

Michael Brennan Award for Best Paper at the Reviews
Ivo Welch, Yale University and National Bureau of Economic Research; Amit Goyal, Emory University

NOTE

‘Out of sample’ means using only data that would actually have been available at the time.

The ‘equity risk premium’ is the extra return that equity investors demand over bonds because of risk. It reflects the market’s overall valuation.
Within Stocks: Value & Growth

Large Capitalization Stocks

Cumulative Value

<table>
<thead>
<tr>
<th>Period</th>
<th>Large Capitalization Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>$3,571</td>
</tr>
<tr>
<td>2008</td>
<td>$2,334</td>
</tr>
</tbody>
</table>

Sources: BARRA; Standard & Poor’s Corporation; Russell Investment Group; Morgan Stanley • Copyright © 2012 Crandall, Pierce & Company – Date as of June 2012

Shaded area indicates periods where Value Stocks or Growth Stocks have outperformed the benchmark index.

Total Return – Last Observations June 2012

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Value and Momentum Everywhere

Clifford S. Asness
AQR Capital Management, LLC

Tobias J. Moskowitz
University of Chicago - Booth School of Business

Lasse Heje Pedersen
New York University (NYU) - Department of Finance; National Bureau of Economic Research (NBER)

March 6, 2009
“In every market and asset class, a value and momentum combination outperforms either value or momentum by itself in terms of risk and return... applied not only to US equities but also to stocks in Japan, the UK, and continental Europe, and to country equity index futures, currencies, commodity futures, and bonds.”

Overall Stock Market Bubbles are Rare
- Two in the last 50 years
  1967-1972: Mostly concentrated “Nifty 50” stocks
  1997-2001: Mostly concentrated in IT, Telecommunications, Media “New Economy” stocks

Individual Company Stock Bubbles are Rare
- Studies 3560 Companies trading above $1bb market cap any year between 1982 and 2007
- Only 123 considered a bubble, defined as (a) P/E double that of the S&P 500, (b) Share price decline > 30% in a year not based upon a substantial decline in earnings
- Fully 92 of those were IT, Telecom, Media stocks during tech boom
- Of remaining 31, only 7 ever achieved a market cap > $5bb

Conclusion: “Sector bubbles” are most common (e.g. financials recently, biotech stocks 2005-06, tech, energy, consumer stocks)

Recent Studies of Sector Caps

Eakins and Stansell, *Journal of Asset Management (2007)*:

Analyzed the returns that could be achieved by rebalancing when any one sector grew to a trigger threshold. By evaluating different trigger points they determined that the optimal portfolio returns were achieved when the portfolio was rebalanced when any sector grew to more than 9% of the total portfolio. They had used 19 sector funds (a mix of broad *Sector* and narrower *Industry* funds) from the years 1995 to 2002 with initial equal weights in each sector of 5.25%.

- They found that consistent rebalancing “reduced investor exposure to sectors that have grown rapidly and may experience reduced performance.”

- They also looked at the effect of dropping the internet sector and found that:

  “Without this sector there were no gains to rebalancing.”

**Their Conclusion:** “A much longer time series will be needed to draw firmer conclusions as to which strategy will surface as superior in the long run.”

Consistency of Outperformance

Year-by-year, the 10% cap with monthly rebalancing produced a higher risk/return ratio in 14 years, or 73% of the time over the 19 full-year periods. It produced a lower maximum drawdown in 18 years, or 95% of the time. These results were calculated from the table below:

### Year-by Year Results: 10% Strategy versus the S&P 500 Index

<table>
<thead>
<tr>
<th>Description</th>
<th>10 % Cap</th>
<th>S&amp;P 500</th>
<th>Comparisons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>10% Strategy</td>
<td>Market Minus</td>
<td>10% Strategy</td>
</tr>
<tr>
<td>1989</td>
<td>2</td>
<td>8.7</td>
<td>22.98850575</td>
</tr>
<tr>
<td>1991</td>
<td>29</td>
<td>14.1</td>
<td>205.6737589</td>
</tr>
<tr>
<td>1992</td>
<td>7.9</td>
<td>9.5</td>
<td>83.15789474</td>
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<tr>
<td>1993</td>
<td>11.3</td>
<td>8.6</td>
<td>131.3953488</td>
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<td>1994</td>
<td>2.2</td>
<td>9.8</td>
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<tr>
<td>1995</td>
<td>37.8</td>
<td>7.6</td>
<td>497.3684211</td>
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<tr>
<td>1996</td>
<td>21.1</td>
<td>11.3</td>
<td>186.7256637</td>
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<tr>
<td>1997</td>
<td>31.8</td>
<td>16.9</td>
<td>188.1656805</td>
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<td>1998</td>
<td>25.2</td>
<td>18.1</td>
<td>139.2265193</td>
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<td>1999</td>
<td>15.0</td>
<td>15.5</td>
<td>96.77419355</td>
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<tr>
<td>2000</td>
<td>1.9</td>
<td>17.8</td>
<td>10.6741573</td>
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<tr>
<td>2001</td>
<td>-9.3</td>
<td>18.4</td>
<td>-50.5434782</td>
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<td>2002</td>
<td>-20.3</td>
<td>25.1</td>
<td>-80.87649402</td>
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<td>2003</td>
<td>27.2</td>
<td>16.1</td>
<td>168.9440994</td>
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<tr>
<td>2004</td>
<td>14.4</td>
<td>10.7</td>
<td>134.5794393</td>
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<tr>
<td>2005</td>
<td>6.1</td>
<td>10.5</td>
<td>58.0952381</td>
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<tr>
<td>2006</td>
<td>18.5</td>
<td>9.9</td>
<td>186.8686869</td>
</tr>
<tr>
<td>2007</td>
<td>9.9</td>
<td>15.7</td>
<td>63.05732484</td>
</tr>
<tr>
<td>2008</td>
<td>-35.1</td>
<td>40.2</td>
<td>-87.31343284</td>
</tr>
<tr>
<td>2009</td>
<td>-17.7</td>
<td>14.1</td>
<td>-125.5319149</td>
</tr>
</tbody>
</table>

Source: Irevna Research, S&P 500
Stocks: Single Stock Diversification

- Many investors follow a 30 stock rule-of-thumb for optimal diversification

- This number comes from research published by James Lorie in 1970

- More recent studies concluded that the optimal number has been increasing over time

- In 2001 the *Journal of Finance* published Burtain Malkiel’s work that put the number closer to 50 stocks; others have put it closer to 100

- We target 60 to 80 stocks and hold no more than 3% in any single company

Summary: Enduring Investment Principles

- Don’t try to time the market
- Think hard about your allocation between stocks and bonds – it’s the most important decision investors make
- If you want the benefit of diversification, avoid riskiest bond classes
- Own Value stocks and Growth stocks; don’t try to time the style bet
- Own stocks in all sectors, and cap exposure to any one sector at 15%
- Hard to do with funds, easier with individual stocks. Own at least 50, but fewer than 100
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