

## Currencies And U.S. Equity Sector Returns

That Wall Street is schizophrenic about the level and direction of the dollar should come as no surprise. Financial markets have an innate cultural need to explain every two-tick move, and as the dollar often is doing something, it is easy to ascribe causality thereto. How else can we reconcile the perpetual fear of a declining dollar with comments that this very same weaker dollar, once it arrives, is good for the stock market?

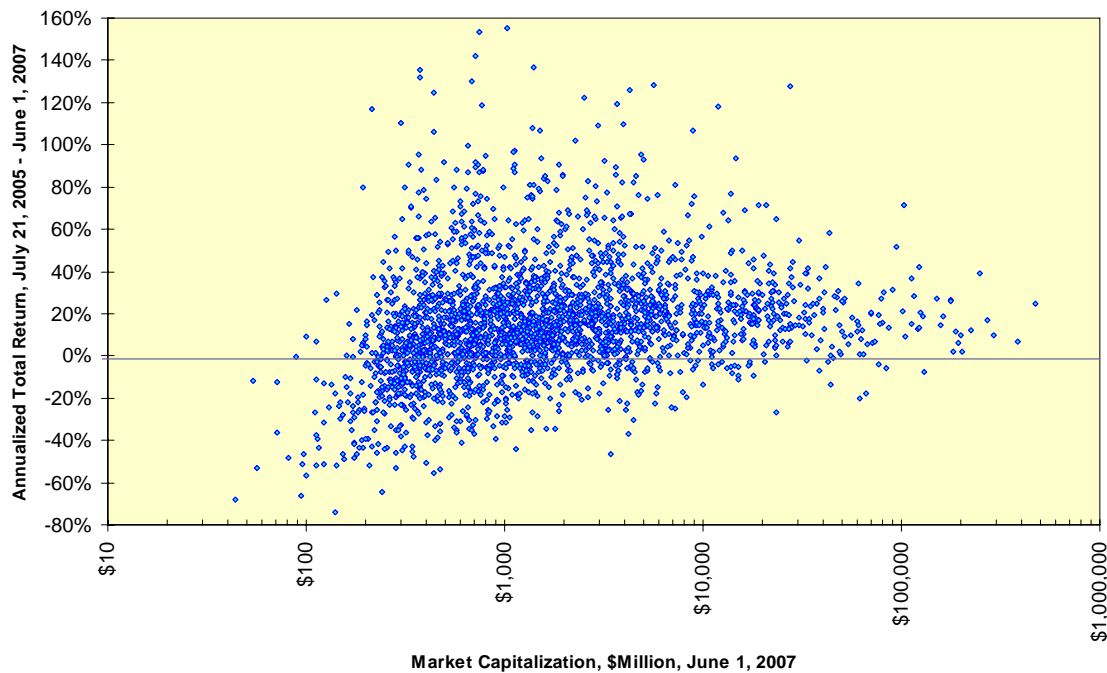
Those who subscribe to this last idea note how a weaker dollar means the repatriated earnings of U.S. firms claim more dollars upon conversion and therefore increase nominal earnings. In addition, the weaker dollar is alleged to make U.S. exports more competitive in the world market. We addressed the lack of evidence for this argument in July and August 2007 and offered 35 years of countervailing evidence in rebuttal.

The first argument, that investors would welcome higher nominal earnings in a debauched currency, does not make much sense, either. It is nothing less than a refutation of efficient markets and suggests investors are fools at the margin. It also suggests countries could devalue their way to prosperity, which is an interesting concept to say the least.

### Does Size Matter?

An ancillary argument in addition to the ones above is larger and presumably more global firms have greater currency exposure and therefore should enjoy greater total returns solely by virtue of their size. Once again, the facts indicate otherwise. If we map average annual return for the members of the Russell 3000 index over the July 21, 2005 – June 1, 2007 period against their market capitalization, we find a diminishing return to size. The starting point of this data sample was chosen to coincide with China's decision to allow the yuan to start revaluing.

**Diminishing Returns To Size**



### A Market Of Currencies

Just as stock market pundits are fond of saying it is a market of stocks, not a stock market, we should be mindful the same applies to currencies. Too many times traders equate the dollar-euro rate with the general state of the dollar, and while the dollar index is a marked improvement over the just using the euro or any other single currency, it ignores the currencies of rapidly-developing minor markets.

A more inclusive approach is suggested. Let's use 53 different currencies clumped into the six broad groups in the table below. The Canadian dollar, while important to the U.S., is a group of one and therefore inappropriate to the structure of the study to follow.

<b>European Major</b>		<b>Asian Minor</b>	
CHF	Swiss franc	CNY	Chinese yuan
DKK	Danish krone	HKD	Hong Kong dollar
EUR	Euro	IDR	Indonesian rupiah
GBP	British Pound	INR	Indian rupee
NOK	Norwegian krone	KRW	Korean won
SEK	Swedish krona	LKR	Sri Lankan rupee
		MYR	Malaysian ringgit
		PHP	Philippine peso
		SGD	Singapore dollar
		THB	Thai baht
		TWD	Taiwan dollar
<b>European Minor</b>		<b>Africa-Middle East</b>	
CZK	Czech koruna	BWP	Botswanan pula
HRK	Croatian kuna	CYP	Cypriot pound
HUF	Hungarian forint	EGP	Egyptian pound
ISK	Icelandic krona	ILS	Israeli shekel
PLN	Polish zloty	IRR	Iranian rial
RON	Romanian leu	KES	Kenyan shilling
RUB	Russian ruble	LBP	Lebanese pound
SKK	Slovakian koruna	MAD	Moroccan dirham
		MUR	Mauritian rupee
		NGN	Nigerian naira
		PKR	Pakistani rupee
		SAR	Saudi riyal
		TND	Tunisian dinar
		TRY	Turkish lira
		ZAR	South African rand
<b>Latin American</b>			
ARS	Argentine peso		
BRL	Brazilian real		
CLP	Chilean peso		
COP	Colombian peso		
CRC	Costa Rican colon		
MXN	Mexican peso		
PEN	Peruvian sole		
PYG	Paraguayan guarani		
UYU	Uruguayan peso		
<b>Asian Major</b>		<b>Other</b>	
AUD	Australian dollar	CAD	Canadian dollar
JPY	Japanese yen		
NZD	New Zealand dollar		

Now, as long as we are going to excess on the quantity of currencies, let's duplicate the effort for stocks. Instead of using the broad Russell 3000 index as a whole, let's divide the members into the ten GICS economic sectors. These are basic materials, energy, financials, industrials, information technology, consumer staples, telecommunications, utilities, health care and consumer discretionary.

### **Methodology**

If the question we wish to answer is how much of the incremental movement of any given stock within a group is a statistically significant function of any individual currency's movement, the following methodology is indicated. First, we need to take the relative movement of each individual stock to the Russell 3000, turn this into a series of

daily returns, and then regress these returns against the returns of each individual currency. As there were 2,679 active members of the Russell 3000 index at the time and 53 currencies, that is more than 140,000 regressions.

The beta, or relative variance, of each stock's relative movements to each currency's movements tells us whether the relationship is positive or negative. But we should not concern ourselves with every statistically insignificant relationship; instead, let's capture each of these betas and test them for significance at a 90% confidence level.

Even with all of this work, we must remind ourselves that correlation does not imply causality. That would involve another set of tests and would be polluted by the different times of each day when various currencies were active and whether they are aligned in time with the U.S. stock market. As for the most part the answer here is, "No," we will stick to correlation and forego any attempts at determining causality.

### Results

We can look at the results in two dimensions, first in tabular form and then with just a few charts out of the 60 raw charts in the study. First, and of most immediate interest, we can look at the trend balance against each currency groups against each stock within each GICS industry sector; the display is restricted to those stocks with a statistically significant relationship.

In the table below we see none of the African-Middle Eastern currencies influence the balance of relative returns in any of the ten economic sectors. Or, for other examples, we see how the balance of relative returns within the energy sector is influenced positively by the European major, European minor and Asian major currencies, while the exact opposite is true for both the consumer staples and consumer discretionary sectors.

Information like this allows us to refine our assessment of currency moves' influence on stocks: We cannot simply say stronger European currencies are bullish for U.S. equities; we need to balance the impact across sectors. One relationship does not fit all.

**Trend Correlation With Currency Groups**

	E-Maj	E-Min	A-Maj	A-Min	Latin	Af-ME
Basic Materials	Pos	Pos	Pos	Pos		
Energy	Pos	Pos	Pos			
Financials						
Industrials		Pos	Pos		Pos	
Information Technology	Neg		Neg			
Consumer Staples	Neg	Neg	Neg			
Telecommunications						
Utilities	Pos					
Health Care	Neg	Neg	Pos	Pos	Pos	
Consumer Discretionary	Neg	Neg	Neg	Pos		

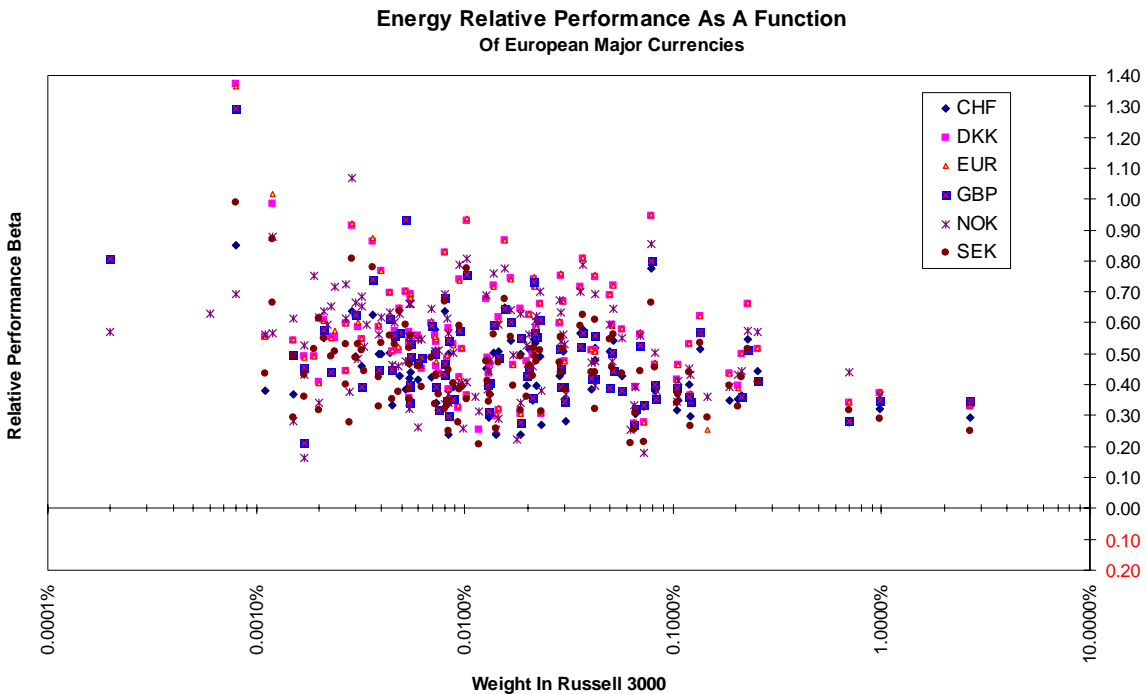
Next we can turn our attention to the size issue. The table below notes any size dependencies in the regression coefficients in the following manner: In sectors where positive incremental returns decline against the currency group as size increases, the cell is marked 'Pos' with a downward arrow. In sectors where negative incremental returns against the currency group increase with size, the cell is marked 'Neg' with an upward arrow. In sectors where incremental returns move toward zero as size increases, both markers are used.

### Size Dependency With Currency Groups

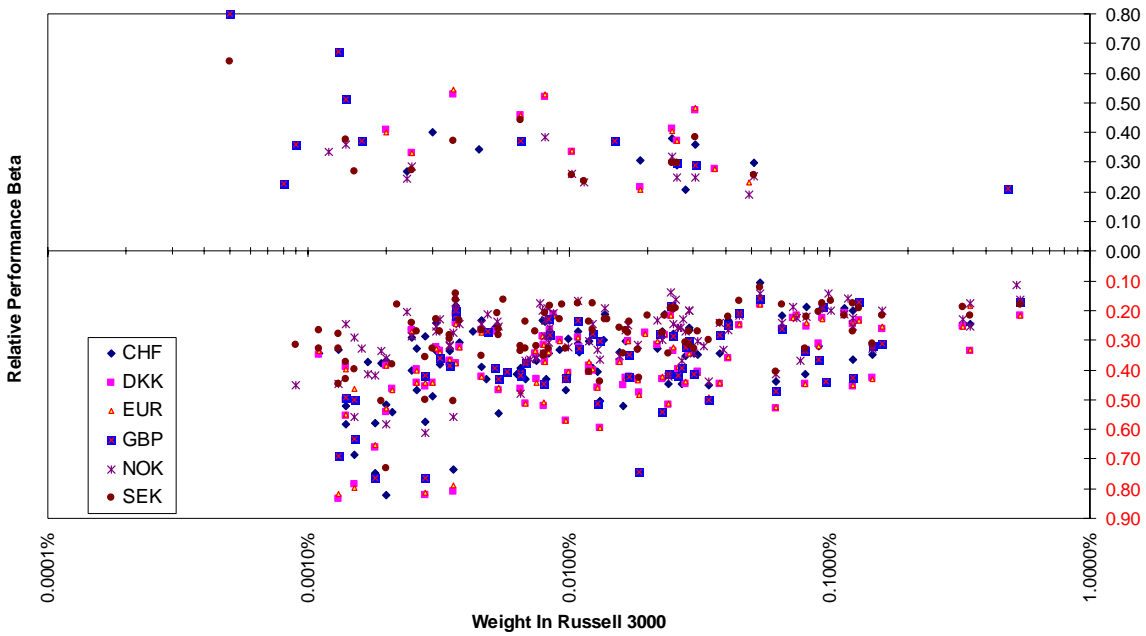
	E-Maj	E-Min	A-Maj	A-Min	Latin	Af-ME
Basic Materials						
Energy	Pos ↓		Pos ↓		Pos ↓, Neg ↑	Pos ↓, Neg ↑
Financials	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑
Industrials	Pos ↓	Pos ↓	Pos ↓		Pos ↓	
Information Technology	Pos ↓	Pos ↓, Neg ↑	Pos ↓	Pos ↓, Neg ↑	Pos ↓, Neg ↑	
Consumer Staples	Neg ↑	Neg ↑	Neg ↑			
Telecommunications						
Utilities						
Health Care	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	Pos ↓, Neg ↑	
Consumer Discretionary	Neg ↑	Neg ↑	Neg ↑			

For example, the positive relationship between the European majors and the energy sector declines with increasing market capitalization. On the other hand, the negative relationship between the European majors and the consumer staples sector increases with market capitalization. The common effect of size on the influence of currencies is the larger the market capitalization, the less influence currency trends have. This is the exact opposite of the oft-posit-ed relationship that larger stocks are more influenced by currencies by virtue of their international business.

To help illustrate the tables, two charts are displayed below depicting the influence of the European major currencies, one against the energy sector and one against the consumer discretionary sector. Each color-coded marker represents the relative performance beta of each statistically significant relationship mapped against the size of the stock as represented by its weight in the Russell 3000 index.



Consumer Discretionary Relative Performance As A Function  
Of European Major Currencies



At the end of all this, what can we conclude? First, we can reject with statistical confidence any assertion that American stocks have uniform reactions to currency movements. Second, we can claim a diminishing return to size. Third, we can claim a diminishing impact of currencies as a function of size. Finally, we can claim that the impact of currencies on stocks is dependent on the economic sector involved.