Hot Stocks and Cold Comfort:
A Comparative Study of Optimism in Financial News and Household Participation in Equity Markets in the U.S., France, and Hong Kong, 1985-2008

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ABSTRACT

Hot Stocks and Cold Comfort: A Comparative Study of Optimism in Financial News, and Household Participation in Equity Markets in the U.S., France, and Hong Kong, 1985-2008

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I use computer-assisted textual content analysis to detect systematic reporting bias in financial news articles from 1985-2008 in the U.S., France, and Hong Kong in order to discern whether such biases contribute to country-level differences in household participation in equity markets. Today about 50% of American households hold stock (or equity) directly or indirectly in publicly traded corporations, while only 24% of French households and 36% Hong Kong adults do so. Publications analyzed include: in the U.S. the Wall Street Journal and the business section of The New York Times; in France Le Monde, Le Figaro, and Les Echos; and in Hong Kong the Standard and the South China Morning Post.

The content analysis revealed consistent, country-level differences in how newspapers report financial news. These differences corresponded not with the overall level, but with the rate of growth in household equity market participation from one country to the next. In Hong Kong, where household equity market participation grew 171% from 1992-2004, financial news sources followed consistent patterns that, taken

together, could be described as pro-business. In contrast in France, where ownership grew by just 2.5% over the same time period, news sources were the least pro-business. In the U.S., where ownership grew 37% from 1992-2004, news sources fell somewhere in the middle in terms of pro-business language. By “pro-business," I mean that Hong Kong newspapers used the most positive, the fewest negative, the most investment-related, and the fewest scandal words, while French publications used the fewest positive, the most negative, the fewest investment-related, and the most scandal-oriented words. While word use fluctuated with time, and with equity markets, country-level differences withstood these changes. Country-level differences also withstood left-right bias within countries. In other words, a left-leaning French publication looked much more like a right-leaning French publication than it looked like a left-leaning U.S. publication.

Positive story bias does not, on its own, fully explain the extremely high level of American household stock ownership, but may help to explain the faster growth in stock ownership among Hong Kong citizens compared with those in the U.S., and the relatively slower growth of equity ownership in France from 1992-2004.

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4 1992-2004 is the longest range for which comparative data is available on household stock ownership. In particular, data on French households is only available from 1992-2004. Similar growth trends are evident from 1989-2007 in Hong Kong and the US. During this time stock ownership grew by 61% in the US and by almost 300% in Hong Kong.
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Chapter 1

INTRODUCTION

Between October 8, 2007 and March 2, 2009, equity markets across the world dropped precipitously. The S&P 500 Index, which accounts for about 75% of the U.S. equity market, lost 56% of its value,\(^5\) which amounts to roughly seven and a half trillion dollars in market capitalization.\(^6\) In the United States, where we have one of the highest rates of household stock ownership in the world, a catastrophe on Wall Street has direct implications for Main Street and the overall health of the economy. As of 2007, over 50% of American households owned stocks, either directly or indirectly.\(^7\) In America, where the stock market made strong gains from 1950 to 2000, it was perhaps tempting for many to overlook the tradeoff between investment return and investment risk. More and more American households during 1950-2000 tended to favor keeping savings in stocks for retirement income needs. Similarly, the same half century saw a massive transfer of wealth away from defined benefit pension plans – where employers provide a fixed retirement benefit and (usually) hire professionals to manage the pension assets – to 401K plans, where employers and employees contribute to an account most often directed by the employee. However, when the stock market plunges, as it did throughout most of 2008 and

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\(^5\) Yahoo Finance.

\(^6\) Standard & Poor’s.

the beginning of 2009, Americans are left wondering: what’s the backup plan for the backup plan?

The United States has the highest stock ownership in the world, as measured by the percentage of households that own equities. According to a comparative analysis of stock ownership by country published by the Australia Securities Exchange, in 2008 45% of American households owned stocks. The closest competitors were Canada, where stock ownership is historically almost as high as that of the US, and Australia, where 41% of individuals owned stock in 2008.\(^8\) Compare this with France, where 24% of households held stock directly or indirectly in 2004, according to the most recent data.\(^9\) Or to Hong Kong, where 36% of adults owned stock in 2007.\(^10\) The latter statistic is not perfectly comparable to the percentage of US and French households holding stock, as the average household in Hong Kong is made up of three people, and the data would double-count or triple-count households in which two or possibly even three adults individually or jointly own stock.\(^11\) When comparing apples to apples, the US still appears to have much higher stock market participation: a *USA Today/Gallup* poll in October 2006 reported that as

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many as 63% of US adults owned stocks directly, where company shares are held by the individual, or indirectly where company shares are held within stock-based mutual funds.\textsuperscript{12}

The question that motivates this dissertation is: How did we get to this point? To what extent can investment culture, as measured by financial news, explain national-level differences in rates of household equity investment? And to what degree did our media help precipitate this great migration of US savings and pension assets to equity markets? Could it be that America’s often admired culture of ‘can do’ optimism, especially with respect to the business of making money, has been conveyed and echoed by our financial mass media, and can help to explain why ownership is so high among households in the United States?

Why does it matter whether a nation is placing nest eggs in brokerage rather than savings accounts? Equity market returns can be lower than expected after inflation, and are often a relatively more risky place to hold one’s life savings – compared to savings accounts, insurance annuities, federal, state and municipal bonds and the like – potentially leading people to under-save for their retirement needs. The average annual total return on large-cap US equities with dividends reinvested since 1825 has been 10%. But about half this growth comes from reinvestment of dividends. Without dividends reinvested, the average annual return of US equities drops to 4.8%.\textsuperscript{13} And after taking inflation into account, it is


just 3.5%. At this rate, over a period of 40 years, every $1 invested in the US equity market would grow to $4. This is not a bad return, but if most people are projecting an 8% return, this flawed expectation could result under-saving.

The stock market can also be highly volatile, as two major crashes in the past decade have shown. A major bear market can wipe out significant income, and can last longer than many would expect. From 1871 to 2009, the biggest bear market by percentage decline lasted for nearly three years, from August 1929 to May 1932, when US equities fell 79%. The second largest decline of 54% encompassed two crashes—the dot-com bubble burst and the crash of 2007-09—lasting nine years from August 2000 to February 2009. The next three biggest crashes, each representing about a 50% decline in US equities, occurred in 1972-74, 1937-38, and in the nine years from 1911-20. If such a crash happens early on in the life cycle, then losses can often be recovered in the subsequent recovery, but as the data shows, a bear market can in some cases last a decade, and this can significantly impact retirement plans.

Volatility is the tradeoff one accepts in exchange for receiving a higher return than expected in a savings account, insurance annuity, or fixed income bond. Although the standard expected return on US equity markets is 8%, many people forget that 8% is a long-run average. During the twenty years from 1988-2008, the average return for the S&P 500 has been 8.7%, but in any given year, the index has only returned between 5-10%

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15 Ibbotson, *ibid*. 
twice during that time period.\textsuperscript{16} In the vast majority of the last 20 years, the annual return has been below 5% or above 10%. While one can reduce portfolio volatility as retirement approaches by increasing the allocation to bonds, even a short bear market can still cause substantial damage. If the S&P 500 returned -17\%, as it did in 2002, the equity portion of one’s portfolio would need more than a 20\% return in the following year just to recoup the original investment. But the following year, in 2003, the S&P returned -24\%. This is an example of how relying on equity markets to produce consistent returns can be a riskier strategy than some give it credit for.

It is not clear that the move toward more individual control over retirement funds is in fact “progress”. Many developed nations, including the three examined in this study, face a problem of ageing populations and strained social programs. In 2010 in the US, the UN estimates that for every 100 people of working age,\textsuperscript{17} 19 were over the age of 65. By 2050, the UN estimates that this number will have risen to 35. The ratio of elderly to working-age is called the “elderly dependency ratio,” and by its measure France and Hong Kong look even worse: for every 100 working-age Frenchmen, 26 are elderly, and 47 will be elderly in 2050. In Hong Kong, where there are just 17 elderly per 100 working-age citizens today, there will be 60 by 2050.\textsuperscript{18}

\textsuperscript{16} Standard & Poor’s
\textsuperscript{17} Note “working age” is defined as 15-64 years.
In the US, the dominant solution to the problem of caring for a growing elderly population has been for households to take more individual control over retirement assets, and for a greater equity component in these individually-controlled retirement portfolios. An important question is whether this shift, on balance, is a good or a bad development for Americans. Individually-managed accounts provide more freedom and more potential for upside, but conversely force individuals to take much more responsibility. According to the IMF, the shift from company-administered pension plans to privately-managed retirement accounts represents a major transfer and reallocation of financial risk to households. Previously the chief risk taken on by households had been the credit risk of the corporate pension plan sponsor, but risks under the new system include 1) market risk, 2) inflation risk, 3) investment planning and reinvestment risk (i.e. operational risk), and 4) longevity risk. These risks of course are not without reward: with privately-managed retirement accounts, households enjoy more choice and portability.\textsuperscript{19} But putting the onus onto the individual can be dangerous. Evidence presented in Chapter 2 shows that the most common portfolio allocation for US households in the lowest income brackets is 100% stocks. The second most common? 100% bonds.\textsuperscript{20}

Whether or not privately managed accounts represent a viable solution to enable reasonable long-term security for our aging population remains to be seen, but it is nonetheless important to understand how the US arrived at individually-managed plans as a solution to the problem of an ageing population. It is important to ask whether this is a function of our


own cultural biases, social policies, economic structure, or some combination thereof, and what contribution our financial media may have made to the financial ecosystem here described.

I conducted a comparative analysis of the overall levels of positive and negative words appearing in financial news stories in the U.S., Hong Kong, and France, and of household participation in equity markets in each place. I also measured the incidence of investment-related and scandal-related words appearing in financial news. The goal was to measure the cultural bias in each country, as reflected in local financial media which has the potential to shape decisions by defining, amplifying, and reinforcing pre-existing values. More specifically, I wanted to test 1) whether the extent to which a culture embraces capitalism could be detected by use of words in business reporting, and 2) whether the use of more pro-business language would correspond with higher stock ownership among households. I used the frequency of positive, investment-related, and scandal words appearing in financial news stories as a measure of where a culture sits on the continuum of capitalism-socialism. I had originally expected to find that in the US, the “American Dream” concept—which in large part is predicated on the assumption that financial success is real possibility for anyone who works hard and is determined—encouraged the use of positive words and pro-business language both because of a positive spin on everyday stories, and because there would be more success-themed stories in general in the realm of business news. But I found instead that Hong Kong business newspapers used the most overall pro-business language.
The evidence presented in this study suggests that a pro-business economic culture, as reflected in language used in financial reporting, predicts growth in stock ownership. Of course the media is not a perfect measure of culture, but it is a) measurable, and b) it is one important means of creating, transmitting, and thus sustaining a society’s investment culture, which is one component of a society’s broader historical cultural narrative which provides a framework of values through which members of that society can interpret new/news events.

Countries which embrace capitalist values tend to use more positive and fewer negative words in financial news stories, and equity market participation tends to be growing more quickly, with the inverse being the case for countries which embrace more socialist views. While the higher rate of equity market participation in the United States is also facilitated by rising markets and structural factors such as a political and economic system that supports individually-managed retirement accounts, the rate of growth in equity market participation has been most rapid in those places where free markets are seen as a panacea: chiefly, in Hong Kong, and to a lesser extent, in the US.

At the outset of this analysis, I was unsure how to classify Hong Kong. While it is economically the most capitalist of the nations included in this analysis, technically it is a ‘special administrative region’ of China, which is a communist country, and many Hong Kong residents are of Chinese descent. Historical and current economic, political, and social conditions all contribute to a country’s culture. Hong Kong has on the one hand

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21 According to the Index of Economic Freedom, published by the Heritage Foundation and the Wall Street Journal, Hong Kong has the freest economy in the world (site last accessed 2/7/10, http://www.heritage.org/Index/).
political and social ties to communism, and on the other hand economic and historical allegiances to capitalism. The analysis of language use herein suggests that Hong Kong’s capitalist values win that tug of war, as Hong Kong’s newspapers use by far the most pro-business language of the three nations. This finding sheds light on the unique blend of communism developing in China—and perhaps suggests that China is using communist means to achieve capitalist ends, rather than the reverse.

Of course, one must acknowledge the catch-up factor in comparing the investment growth rate in the US to that of Hong Kong. The percentage of households that own stock in the US is already much higher than it is in Hong Kong, and one would therefore expect growth to slow after the market reaches a point of saturation. However the fact that investment growth in France, where the overall level of stock ownership is below that of Hong Kong, is so slow, suggests that the catch-up component is only one factor explaining Hong Kong’s rapid stock ownership growth.

Two other possible explanations for the national-level differences in investment behavior must be addressed. The first is structural: economic and political systems may explain some differences in stock ownership. In the U.S., the system of individually-managed retirement accounts may encourage certain investment behaviors, while privately-managed mandatory savings contribution programs in Hong Kong and pension systems in France encourage a different set of behaviors and attitudes toward investment. But why has the individually-managed solution become more popular in some countries while government pensions more popular in others? Clearly we have to dig deeper.
The second explanation for stock ownership that deserves recognition is market returns. Perhaps higher stock market returns in Hong Kong and the U.S. explain higher market participation in these places. The evidence presented herein does show that within the US, stock ownership has fluctuated over time with the markets: when the markets go up, so too does the percentage of households owning stock and the use of positive words. Moreover risk-adjusted as well as overall market returns during the period under analysis have been highest in Hong Kong, where household stock investment has grown the fastest, and lowest in France, where investment growth has been the lowest. However, this explanation does not withstand closer inspection. Hong Kong outperformance occurred only recently (2006-2008), but both the rapid growth in stock ownership in Hong Kong and publications’ greater use of positive words precede the market run-up that drove outperformance. Market performance therefore may be one variable that, along with the media’s language use, helps to predict growth in a country’s ownership level, but it does not appear to be the decisive factor.

A further possible explanation for the highly optimistic outlook of Hong Kong’s press is that, although Hong Kong enjoys de jure freedom of the press, de facto or self censorship could be common in this Special Administrative Region of China, because it may be much ‘safer’ to act as a cheerleader for the markets than as a real investigative reporter. However members of the Hong Kong press enjoy many more liberties that their Chinese counterparts. Freedom of the press is protected under Hong Kong’s Basic Law constitution, and according to the French organization, Reporters Without Borders’ 2010
Press Freedom Index, Hong Kong is ranked second in Asia in terms of press freedom, behind only Japan. Of 178 countries analyzed by the independent organization, Hong Kong ranked 34th, behind the US—which ranked 20th—but above France, which ranked 44th. Mainland China ranked in 171st of 178 countries analyzed.22

This dissertation sought to prove that Americans own more stocks in part because of a more pro-business culture that would be reflected in how financial news was reported. In a culture that rates financial success so highly, I expected to find greater use of positive words in the financial news media in the US compared with France and Hong Kong. The results that follow, however, show the reality to be much more complex. It is in fact Hong Kong, which after all has the freest economic structure, that uses the highest proportion of positive and investment-related words and the lowest proportion of scandal words in the business news media. Although Hong Kong does not yet have the highest percentage of stock ownership among its citizens, stock ownership is growing the fastest there. My hypothesis, that optimistic pro-business language is correlated with stock market participation, still holds; but Hong Kong not the US, is the purest model of capitalist culture as measured by the language of financial news.

In order to measure pro-business bias in financial reporting, this study used a computerized content analysis program to measure the percentage of words in French, US, and Hong Kong newspapers that are optimistic, pessimistic, investment-related, and scandal-related. Why were France and Hong Kong chosen as the subjects of comparison? France has a

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well-developed set of newspapers and financial media like the US, but appears culturally more socialist and statist. Hong Kong provides an interesting point of comparison because it is technically the most economically capitalist country in the world, but is formally a part of the People’s Republic of China under the political leadership of the Communist Party of China. Hong Kong also has the added benefit of having both English and Cantonese as official languages, thus improving the comparability of content analysis results for US and Hong Kong publications. The English-language newspapers analyzed are among the most highly circulated and regarded in Hong Kong.

The first hypothesis tested was as follows: the US has the highest proportion of households invested in the stock market as a result of our optimistic culture, which is reflected in the financial press. The goal was to test my assumption that cultural bias toward optimism was the driver behind the tendency of Americans to first, believe themselves capable of managing a portfolio that will provide adequate retirement income beyond social security, and second, to turn to the riskier stock market in order to do this, rather than to depend on savings accounts, pension funds, insurance annuities, and government bonds.

My second hypothesis was that Hong Kong newspapers would more often use words associated with short-term investment than the U.S. or France, while American papers would use the most words from the long-term investment category of the three countries. Americans tend to trade stocks trade less frequently than Hong Kong investors.\textsuperscript{23} I therefore hypothesized that the investment culture of each place, as measured by language

\textsuperscript{23} See Chapter 2 for supporting data.
used in local financial newspapers, would exhibit an ideological bias towards the investment philosophy associated with the behavior of local investors. However, the content analysis revealed something quite different. Hong Kong business news articles did not use more short-term investment words. In fact, all news sources used more long-term than short-term investing words. But Hong Kong publications used more investment-related words overall—both long and short term—than U.S. publications, which in turn used more investment words than French publications. This could potentially suggest that more discussion of investment news encourages equity market participation. Moreover within each country, investment-related news tended to increase in tandem with optimistic news and rising markets, suggesting that investment-related news tends to be positive.

The third and final hypothesis tested in this paper is as follows: scandal word use would correspond with both bear markets and negative word use. The results show that, as expected, scandal stories are more prevalent in bear markets. But perhaps more interestingly, French publications consistently used significantly more scandal-related words then either Hong Kong or US publications. This suggests that prevalence of scandal stories are an indication that a culture looks less favorably in general upon capitalism. This is supported by the fact that scandal terms appear with increasing frequency during bear markets, when public sentiment towards the business community would be at a low point. This evidence further supports the notion that there are distinct national-level biases in terms of how publications report business news that are related to where a culture’s values fall on the capitalism-socialism continuum.
Overall, the results show that use of pro-business language is highly coincident with patterns of stock ownership. A country’s economic-political culture helps to predict the growth in household investment, but not necessarily the overall level of household investment. Where a country lies on the left-right continuum is a strong predictor of growth in stock ownership, with socialist public policy at the extreme on the left associated with the slowest growth in stock ownership and a free market system at the extreme on the right associated with the fastest ownership growth. In Hong Kong, which ranks first in the Index of Economic Freedom, and where financial news publications use the most positive and investment-oriented words, the fewest negative words and the fewest scandal-oriented words of all publications, household stock investment has grown 171% from 1992 to 2004. In contrast in France, which ranks 64th in economic freedom, and where the financial press uses the highest proportion of scandal and negative words, and the lowest proportion of investment-related or positive words, household stock investment has grown only 2.5% from 1992-2004. In the U.S.—the ninth-most free economy in the world—the household investment rate grew by 37% from 1992-2004, and publications’ use of language also falls in between that of French and Hong Kong publications in each category. It should be noted that growth in Hong Kong ownership was off of a very low base, while growth in the US was off of a high base.

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It would be difficult to impossible to claim to have established one definite cause of stock market participation among three chief variables—equity returns, investment rates, and language in the financial press—examined in this study, as each has the potential to influence the others. As new investors enter the market, higher demand inflates index prices. These market gains in turn tempt more individual investors to enter the market, and so on. Nonetheless, the fact that the highest proportion of positive words appear in those cultures with a) the most capitalist economic structure and b) the highest rate of growth in stock ownership, do suggest that the use of language is closely related to behavior.

In the pages that follow, I do not attempt to prove that positive word use is a direct or sole cause of investment in stocks. In fact, the data presented herein shows that within any one country, fluctuations in positive word use do not explain changes in stock ownership over time. I do attempt to prove that positive word use is both a cause and a consequence of a country’s attitude towards business, and that an optimistic attitude toward business is one of many factors that foster growth in stock ownership from one country to the next. I do not argue that the influence is a one-way street; media and investment culture influence one another. Positive news about corporations is likely to encourage more stock buying, but at the end of the day the Wall Street Journal must sell newspapers, and if a high or growing

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28 This is an oversimplification of market supply-demand dynamic. Other factors, such as initial public offerings (IPOs), secondary or follow-on stock offerings, the exercising of convertible or other options, and leveraged buyout transactions will all also affect equity market supply.
proportion of readers are also investors, these investors may want to read hopeful news about investment opportunities more than painful news about their failing investments.

While the results show that the frequency of positive or negative word use in the context of business news is correlated with growth in household stock investment from one country to the next, month-to-month fluctuations in the use of positive and negative words coinciding with movements in the stock market within each country do not coincide with changes in household stock investment. In fact, it seems that in the United States, the best predictor of changes in household stock investment from 1985-2008 has been the level of the S&P 500. In Hong Kong, changes in ownership of stocks among adults during this time frame has been best predicted by the mere advance of time. *It is the overall, average use of polar language by publications, which withstands market-based fluctuations and is directly related to the national political-economic culture, that predicts a country’s rate of growth in household investment.*
Chapter 2

PATTERNS OF HOUSEHOLD INVESTMENT

The following section takes a more granular look at the history and nature of household equity ownership in the U.S., France, and Hong Kong. By looking at the elements that make up the particular breed of investment culture that has developed in each place, we can better understand what has driven equity ownership there. First, the way each country has planned for the retirement of its citizens has influenced equity ownership. Second, within each country, ownership levels broadly follow equity market performance. Finally, stock ownership has been driven by socio-economic classifications in the U.S. and France, but not Hong Kong. In Hong Kong, ownership is equally high across socio-economic classifications, and trading is much more common.

In the U.S., equity ownership has been driven by mutual fund ownership through retirement plans. As a result, direct equity ownership is less common and very few Americans are frequent traders. In France, government pensions are the norm, and equities in France have not enjoyed the same boost as those in the U.S. from mutual funds owned in retirement savings accounts. French stock ownership tends to be direct rather than indirect. The level of direct stock ownership is about the same in the United States and France, but what accounts for the differences between France and the U.S. in overall stock ownership is indirect stock ownership, or ownership through mutual funds. In Hong Kong, a
mandatory retirement fund scheme which requires all employees to contribute 5% of salaries to mutual fund-type vehicles has in part driven equity ownership. This in part explains why stock ownership in Hong Kong spans socioeconomic groups. But unlike the U.S. this does not seem to have deterred direct stock ownership. While Hong Kong data does not break out indirect vs. direct ownership, the fact that Hong Kong investors trade so often suggests direct equity ownership is quite common. 85% of Hong Kong stock owners identify themselves as stock traders.

Equity market performance must be recognized as a driver of household equity ownership over time for the countries analyzed herein. Equity ownership in the U.S., Hong Kong, and France has ebbed and flowed with global equity market performance. Both direct and indirect ownership grew throughout the 1990’s, reached a peak in 2000, and then declined slightly along with equity markets until 2004. Since 2004, in the U.S. and Hong Kong, stock ownership began to rise again as equity markets rose, leading up to the crash in 2008.29

In France and the US, households in the highest income brackets and with household heads in professional or managerial occupations tend to have the highest levels of stock ownership. On the other hand stock ownership in Hong Kong is not as heavily skewed towards the wealthy. In 2004, 70% of French households making over €45,000 annually owned stocks (the top decile makes over €37,000 annually) while only 7.5% of the bottom

29 It may also have risen in France, although 2004 is the latest year for which household stock ownership data is available.
two deciles of households by income owned stocks in 2004. In the US in 2004, 93% of US households in the top decile by income owned stocks directly or indirectly, while just 12% of households in the bottom two deciles owned stocks. In Hong Kong, stock ownership and stock trading is almost equally common among all occupations. Perhaps this can in part be explained by the fact that investment in retirement plans is a requirement of all employees in Hong Kong, whereas in the U.S. and France retirement plans are offered much more commonly to the professional classes.

United States

Stock ownership in the United States is widespread and has increased since 1989, driven by growth in employer-sponsored retirement plans. Of American households owning stocks, most own them through retirement accounts such as 401(k)s or IRAs. There are considerable disparities among households’ stock ownership rates based on income and profession. Households headed by white professionals in the top income brackets are much more likely to be stock owners than other groups. This has remained largely unchanged from 1989, although all U.S. groups have made some gains in the percent of households owning stocks in the intervening two decades. Most U.S. stock investors consult with financial advisors, but do not trade frequently, instead buying and holding mutual funds comprised chiefly of stocks.


Figure 1 shows the percent of U.S. households owning stock from 1989 to 2007 according to the triennial Survey of Consumer Finances published by the U.S. Federal Reserve Board. The percentage of households owning stock both directly and indirectly, represented by the lighter grey line, has increased more quickly than the percent of households owning stock directly, which has remained relatively stable since 1989 and has in fact decreased since 2001. From 1989 to 2007, the percent of households owning stock directly grew by 6.5%, from 16.8% to 17.9% of total households. Meanwhile, the percent of households owning stock either directly or indirectly grew by 61.2%, from 31.7% to 51.1%. The greatest growth in both categories was achieved between 1989 and 2001. Since that time growth has tapered off, possibly as a result of the dot-com era stock market crash having spooked investors.

32 Although data on direct stock ownership goes back farther, this study is limited to the years of 1989-2008 in part because 1989 is the first year in which data on direct and indirect stock ownership is available via the US Federal Reserve’s Survey of Consumer Finances.


Figure 1: Percent of U.S. households that own stock directly and indirectly.\textsuperscript{35}

Tax-deferred retirement accounts are by far the most common type of direct or indirect stock holdings, while the wealthiest people tend to hold stocks directly. Of those households that reported owning stock either directly or indirectly in 2007, 84\% owned stocks in a tax-deferred retirement account while 35\% held stocks directly.\textsuperscript{36} However while most people who own stock do have a retirement account, these accounts represent only a little over a third of all households’ total direct and indirect stock holdings. In 2007 only 38\% of the total amount of direct/indirect holdings was held in tax-deferred retirement accounts, while 34\% was in directly-held stocks and 22\% was in directly held pooled investment funds, which include mutual funds, REITs, and hedge funds.


\textsuperscript{36} Tax-deferred retirement accounts include IRAs, Keogh Aaccounts, and certain employer-sponsored accounts (401(k), 403(b), and thrift savings accounts from current or past jobs; other current job plans from which loans or withdrawals can be made; and accounts from past jobs from which the family expects to receive the account balance in the future. Pooled investment funds exclude money market mutual funds and indirectly held mutual funds and include all other types of directly held pooled investment funds, such as traditional open-end and closed-end mutual funds, real estate investment funds, and hedge funds.

For most Americans, *direct* stock ownership seems to be a haphazard and provincial endeavor, with most portfolios containing only a few stocks chosen for their familiarity rather than because they contribute to a well-diversified portfolio. In fact, in 2007 36% of all households that owned stocks directly owned *only one* stock. 47% owned from two to nine stocks, and only 16% owned ten or more. Only 16% of households owned stock directly in a foreign company.\textsuperscript{37} According to Modern Portfolio Theory (MPT), pioneered by Harold Markowitz in the 1950’s, the addition of any stock to a portfolio with less than perfect correlation with any stock in that portfolio theoretically reduces the risk of the overall portfolio. MPT tells us that that 60% of risk can be eliminated with a portfolio of about fifty equal-sized and well-diversified U.S. stocks, but beyond that the addition of more stocks does not decrease overall portfolio risk materially.\textsuperscript{38} So why do 83% of U.S. stockholders own fewer than ten stocks? Of course, many people have not read Markowitz, and even if they had, do not have sufficient capital to diversify effectively. But another possible explanation is that in most cases directly held stocks complement, rather than replace, retirement accounts, which are much more likely to contain mutual funds that provide diversification. In 2008, only 28% of all households that owned stock did so only *outside* an employer-sponsored retirement plan.\textsuperscript{39} 37% of all stock-owning households held stock *both* inside and outside employer-sponsored retirement plans, and 35% who held stock *only* through an employer-sponsored retirement plan.\textsuperscript{40}


\textsuperscript{39} Michael Bogdan, John Sabelhaus, and Daniel Schrass, “Equity and Bond Ownership in America, 2008,” 45.

\textsuperscript{40} Employer-sponsored retirement plans include DC plans (such as 401(k), 403(b), or 457 plans) and employer-sponsored IRAs (SEP IRAs, SAR-SEP IRAs, and SIMPLE IRAs). Stocks include individual stocks, stock mutual funds, hybrid mutual funds, exchange-traded funds, and variable annuities.
Income, employment, and race all strongly increase the likelihood that a given family will own stocks. Figure 2 shows that among those in the top tenth of households by income percentile, over 90% own stock either directly or indirectly, while among those in the bottom fifth of households by income percentile, only 14% owned stocks. Likewise, race and occupation are both strong determinants of both direct and indirect stock ownership. A likely explanation for this is that profession and race are both likely to coincide with higher income jobs, which are themselves the most likely to offer comprehensive retirement plans.

Figure 2: Percent of U.S. households owning stock directly and directly/indirectly in 2007 by occupation, income percentile, and race.\(^{41}\)

Many scholars cite the growing popularity of 401(k)s and tax-deferred Individual Retirement Accounts (IRAs) as a major contributing factor to this increase in stock

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ownership. According to a report issued by the Investment Company Institute and the Securities Industry and Financial Markets Association, the growth in household stock ownership since 1989 has been fueled by gains in the percentage of households owning stock through employer-sponsored retirement plans.

Employer-sponsored retirement plans are broadly divided into two categories: Defined Benefit and Defined Contribution. In a Defined Contribution (DC) plan, the amount that is contributed to the retirement fund is defined. The employee can choose to contribute a portion of his salary to a tax-deferred account such as an IRA or 401(k), and in some cases employers will match contributions up to a certain amount. Employees can choose from a number of investment vehicles, and there are restrictions on when and under what circumstances funds can be withdrawn without negative tax implications. In contrast, under Defined Benefit (DB) retirement plans, the benefit rather than the contribution is defined. In other words, it is the employer’s responsibility to save and invest wisely, and the employee can expect a pre-set benefit upon retirement. Pensions are Defined Benefit plans, and for most people they are a more stable option, albeit with less opportunity for upside.

As Figure 3 shows, stock ownership was highest in 2008 for households that have been offered both a Defined Benefit and a Defined Contribution plan through an employer, and

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second highest for those offered only a Defined Contribution plan, regardless of the level of household income.

Figure 3: Ownership of stocks and bonds among U.S. households in 2008 by income and retirement plan availability.\textsuperscript{44}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure3.png}
\caption{Ownership of equities\textsuperscript{1} or bonds\textsuperscript{2} percentage of U.S. households aged 25 to 64 by household income\textsuperscript{3} and retirement plan coverage, 2008.}
\end{figure}

Two things might explain why a higher percentage of households offered both types of plans would be stockowners, when only DC plans involve stock investment. First, younger employees are both more likely to be offered only a Defined Contribution plan, and less likely to participate in any form of retirement planning. Second, higher income jobs offer more benefits, are most likely to be held by older workers, and allow the beneficiary to take advantage of DC plans by putting aside some of that excess income. Among households

\textsuperscript{44} Michael Bogdan, John Sabelhaus, and Daniel Schrass, “Equity and Bond Ownership in American, 2008,” 23.
with income at or above $100,000, stock ownership is almost as likely for those offered both a DC and DB plan as it is for those offered a DC plan only.

Within U.S. household balance sheets, directly-held stocks have decreased slightly while the proportion contributed by retirement accounts has increased. Since 1998, the proportion of U.S. households’ total financial assets made up of direct and indirect stock holdings has remained relatively stable at about 54%. But direct stock holdings have declined from 23% of households’ overall financial assets in 1998 to 18% of such assets in 2007, while retirement accounts steadily increased their share of total financial assets from 28% in 1998 to 35% in 2007. Pooled investment vehicles similarly gained share of total financial assets, going from 12% in 1998 to 16% in 2007. All other categories of financial asset have remained relatively stable. It would seem that declines in the proportion of assets in directly held accounts are being offset by inflows of money to retirement accounts and pooled investment vehicles.

Defined Contribution plans include 401(k) plans, 403(b), 457 plans, and IRA accounts. Over 40% of workers aged 21-64 owned a 401(k)-type plan or an IRA in 2004, from 34% in 1996. Both have been growing at a similar rate since 1996, but 401(k) accounts have been more popular than IRAs. In 2004, 30% of U.S. workers aged 21-64 participated in a

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45 Financial assets include transaction accounts, certificates of deposit, savings bonds, bonds, stocks, pooled investment funds (excluding money market funds), retirement accounts, cash value life insurance, other managed assets, and other; Financial assets themselves represented 33.9% of total household assets in 2007, and 40.7% of total household assets in 1998; Brian K. Bucks, Arthur B. Kennickell, Traci L. Mach, and Kevin B. Moore, “Changes in U.S. Family Finances from 2004 to 2007: Evidence from the Survey of Consumer Finances,” Federal Reserve Bulletin (February 2009): A15, A27.
401(k)-type account, while 21% owned an IRA. These two percentages exceed the total of 40% because some own both an IRA and 401(k) account.

In part because of the popularity of retirement accounts made up of mutual funds, the majority of Americans who do own stocks are not frequent traders. According to the 2008 ICI/SIFMA Equity and Bond Owners Survey, of U.S. households owning stocks, only 43% reported buying or selling shares in the previous 12 months, while 57% of reported conducting no transaction. This is relatively unchanged from 1998. Since retirement holdings are, for most people, by definition a long-term investment, it is reasonable that households would not be actively trading individual stocks or rebalancing portfolios frequently.

It is possible American investors who buy and hold mutual funds would still experience high portfolio turnover. Theoretically, while an individual may make no trades, the mutual fund manager will likely trade stocks within the portfolio. But if one looks at the top 10 holdings among the largest 50 actively-managed US mutual funds—Microsoft, Wells Fargo, Merck, JPMorgan, Google, Pfizer, Apple, Chevron, Oracle, and AT&T—it does not seem that the largest mutual fund managers are taking short-term bets. These are not volatile small caps. They are some of the largest market cap, blue-chip companies in the

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47 Stocks include individual stocks and stock mutual funds; exclude hybrid mutual funds, variable annuities, and exchange-traded funds. Transaction activity includes the purchase or sale of individual stock or stock mutual funds but excludes automatic contributions from a paycheck or bank account, as well as automatic reinvestment of dividends.


United States that are likely purchased for their ability to deliver consistent dividends, stable earnings growth, and price appreciation over the long-term. Moreover, since what trading activity does occur is generally only communicated to the individual investor via dense, dry quarterly fund reports, I would expect this trading to have minimal impact on American investment culture.

If IRA and 401(k) plans are encouraging Americans to save more, and to educate themselves and make sound investment decisions that grow their portfolios over time, then on balance the trend towards individual control over retirement accounts is positive. But it would seem that many Americans are giving little thought to portfolio allocation. It has already been noted that direct stock holdings are somewhat undiversified, and it would seem that for many people, IRA and 401(k) accounts are not much better prepared to weather a significant downturn. Just over half of all households owning a 401(k)-type plan or an IRA are either 100% invested in stocks or 100% invested in bonds.50 Full investment of retirement plans in stock is most common among households in the lowest income brackets for both IRAs and 401(k)-type plans, as we can see from Figure 4.

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Many Americans, when faced with the choice of how to allocate retirement funds, are merely parking 100% of their assets in either stocks or bonds. Although it is comforting to note that the allocation to stocks decreases with age, it is nonetheless troubling that the lowest income groups are not properly diversified. For those invested 100% in stocks, the margin for error is very narrow in the event of a market downturn, where stocks will be hardest hit. For those 100% invested in bonds, investment income will not likely be high enough to provide adequate funds for retirement.

France

While retirement accounts have been a major catalyst for household stock investment in the United States, the French government offers comprehensive retirement pension benefits, obviating the need for most households to turn to the stock market as a last line of defense for retirement income. An indication of this trend is the fact that direct stock ownership is almost as common as it is in the U.S., but where the U.S. outpaces France significantly is in indirect household stock ownership, because of the ubiquity of IRA and 401(k) plans in the

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U.S. The households with the highest percentages of stock ownership in France are typically those that fall into the highest income brackets, as well as those whose heads are employed in professional and managerial occupations.

In France, retirement is quite literally synonymous with a pension. According to the Oxford-Hachette French Dictionary, the French word *retraite* translates to 1. retirement; 2. pension. The French pension system is a patchwork of schemes organized on an occupational basis. Agricultural workers, government employees, skilled tradesmen such as plumbers, miners, and railroad employees are all covered under special schemes, but most of the working population is covered by the general scheme (*regime général*). The general scheme is divided into basic and supplementary schemes, and operated on a “pay-as-you-go” system, which means that current pensioners are paid with the contributions of current workers. In order to claim a full-rate pension, a pensioner must have contributed for 40 years and be at least 60 years old. The average pension is 85% of the final net salary of a private-sector employee, ranging from 100% for low-income earners to 65% for high income earners.

Pensions are indeed an important part of the French retirement scheme. In 2000, the percent of total income that came from government pensions of French citizens over 65 was roughly 70%. This is in stark contrast to the U.S., where the percent of income for

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Americans over 65 coming from Social Security was 41.3%.\footnote{Employee Benefits Research Institute, “Income of the Elderly, 2000” data from the “March Current Population Surveys,” (Washington: EBRI, June 2002).} One would expect the French, with a better safety net, to take greater risks with their savings and if anything to be more likely to own stocks, but this is not the case.

Indirect stock ownership is much less common in France than it is in the U.S. and has in fact decreased since 1992. On the other hand, direct stock ownership in France has risen and is only slightly lower than direct stock ownership in the U.S. In 2004, the most recent year for which data is available for France, 24.3% of households owned stock, either directly or indirectly;\footnote{According to INSEE, indirect holdings include those in collective investment vehicles, such as SICAV funds (Societé d’investissement a capital variable), which are open-ended investment funds common in Europe. Shares are bought and sold based on the fund’s current net asset value (NAV); F. Dumontier, F. Guillaumat-Tailet and J.-J. Malpot, “Le Patrimoine des ménages se diversifie,” INSEE Premiere No. 454, May 1996, Paris: INSEE, 1996.} well below the 50.2% of U.S. households who owned stock either directly or indirectly in 2004. However if we look at direct holdings only, French households are almost as likely to own stock as their American counterparts: in 2004, 16.3% of French households owned stock compared with 20.7% of U.S. families in the U.S.\footnote{The Federal Reserve Board, "2007 Survey of Consumer Finances Chartbook," March 9, 2008, Board of Governors of the Federal Reserve System http://www.federalreserve.gov/PUBS/oss/oss2/2007/scf2007home.html (accessed 4/26/09); Marie Cordier and Catherine Rougherie, "Patrimoine des Ménages début 2004: Le déploiement de l’epargne salariale," INSEE Premiere No. 985, Septembre 2004, Paris: INSEE, 2004.} Figure 5 shows that the percent of French households that report both direct and indirect stock ownership has remained relatively stable, while the percent reporting direct stocks ownership has increased over time, peaking in 2000 and declining slightly since.
From 1992 to 2004, direct stock ownership climbed from 8.5% to 16.3% of French households, a 92% increase. Meanwhile, the combined metric of direct and indirect stock ownership climbed only 2.5%, from 23.6% to 24.2%. This implies that the proportion of households owning stock indirectly has decreased, although indirect ownership is not measured independently by the French National Institute of Statistics and Economic Studies (INSEE).

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Why might direct ownership have increased while indirect ownership has decreased? Direct ownership may have increased because the Internet has reduced brokerage and trading costs, allowing more households to participate in stock markets. But because the French government has consistently provided extensive pension benefits to its citizens, individual or employer-sponsored retirement accounts have not become as popular in France as they have been in the U.S. Since 401(k) and IRA accounts have driven much of the growth in indirect stock ownership in the U.S., it is not surprising that a lack of similar programs would coincide with stagnation or even a decline in indirect stock ownership in France.

Much like the U.S., household stock ownership in France is highly dependent upon the household income and occupation of the head. In 2000, the latest year for which household income data was available, 67% of French households with annual income above F300,000 owned stock either directly or indirectly, while only 7.5% of households with under F60,000 income owned stock. 61

Not only are households in the highest income brackets the most likely to be stock owners, but stock ownership has increased among households with the highest income, and decreased among those in lower income brackets. From 1992 to 2000, the percentage of households with income below F150,000 who owned stocks either directly or indirectly

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declined by an average of 11%. Meanwhile, the percentage of French households with income above ₣150,000 who owned stocks directly or indirectly increased by an average of 13%. The households in the second-to-highest income bracket, with income between ₣240,000 and ₣300,000, experienced the greatest gains in stock ownership between 1992 and 2000, from 42% of households to 50%, for a total gain of 19%. The households that registered the largest declines in stock ownership during this period (-24%) were those with household income between ₣45,000 and ₣60,000, the second-to-lowest income bracket.\textsuperscript{62} Over this time period, income distribution in France remained relatively stable, with the mean real disposable income growing only slightly faster, at 9%, than the median, at 7%.\textsuperscript{63} It seems that stock ownership is a pursuit reserved largely for the wealthier groups in France.

The profession of the household head is also a strong predictor of stock ownership in France. In 2004, the households with the highest proportion of stock ownership (61%) were from \textit{les professions liberales} (which translates to advanced liberal arts degree-holding professionals, such as engineers, lawyers, and architects), followed by \textit{les cadres} (executives and managers) at 50%. Unskilled workers (\textit{ouvrier non qualifie}) and the non-retired unemployed (\textit{autre inactive}) were the least likely to own stocks, at 7% and 9%, respectively.\textsuperscript{64} This confirms that stock ownership in France remains a relatively elite activity.


\textsuperscript{63} INSEE, “Revenu disponible par ménage (moyenne et médiane),” Institut national de la statistique et des etudes economiques, 2008 \url{http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATSOS04202} (accessed 10/09/10).

Hong Kong

Stock investment among households in Hong Kong is not as prevalent as it is in the United States, but has nonetheless become increasingly common, especially in the past five years. Despite having a population of just over 7 million at the end of 2008, Hong Kong has become a financial center of global economic importance. As the dark line in Figure 6 shows, in 2007 the financial services sector contributed almost 20% to Hong Kong’s GDP. Compare that with the U.S. (dotted line), where since 1996 it has made up only about 8%.

In fact, the figure below shows that investment activities alone contributed over 6% to Hong Kong GDP in 2007, compared to just 2% in the U.S. But does this massive financial apparatus encourage investment in the stock market by ordinary citizens or is the majority of this financial activity the result of international investment?

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66 Includes all activities listed under Finance & Insurance by the United States Bureau of Economic Analysis. This includes Federal Reserve Banks, credit intermediation, and related activities; Securities, commodity contracts, and investments; insurance carriers and related activities; and funds, trusts, and other financial vehicles.

67 Investment activities in Hong Kong include stock brokerage, asset management, finance leasing and investment and holding companies, and in the U.S. include securities, commodities, investments, and financial vehicles. The financial services sector in both the U.S. and Hong Kong includes aforementioned investment activities plus banking and insurance.
Unlike the statistical offices of the U.S. and French governments, the Census and Statistics Department of the Government of the Hong Kong Special Administrative Region (SAR) does not measure categories of assets held by households. However, with available data from different private and public sources, it is possible to arrive at an estimate of the prevalence of stock ownership in Hong Kong.

Since 1989, Hong Kong Exchanges and Clearing, Ltd. has conducted an annual “Retail Investor Survey,” measuring the percent of the adult population who held or traded stocks in the previous 12 months. In addition, we can look to the investment holdings of Hong

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Kong’s mandatory retirement savings plan participants to get a more complete picture of stock ownership in Hong Kong.

Figure 7 shows that stock ownership in Hong Kong has been rising since the survey began in 1989, except for a slight dip from 2000-2003. And although no survey results were published in 2006, the data from 2007 suggest that stock ownership continued its upward climb during this time. In fact, from 2003 to 2007, the percent of adults who owned stock in the prior 12 months more than doubled from 17.5% to 35.7% of the population. During this time, the percentage of adults who had traded stock in the prior 12 months climbed even faster, from 12.3% to 30.6%. The fact that the percentage of the adult population that trades stock trails the percentage that owns stock by only five percentage points is an indication that active trading is fairly commonplace among Hong Kong residents. This does not appear to be a group of passive buy-and-hold investors.
In Hong Kong, almost every demographic is represented among stockholders. This does not mean that everyone in Hong Kong owns or trades stocks, but that those people who do report owning stock are a fairly representative cross-section of the total population. Figure 8 illustrates this by comparing the percent that each occupation contributed to the total population to the percent each contributed to the pool of stock owners and traders in 2007. Note that a substantial number of those who reported trading stocks in the prior 12 months were retirees, homemakers, and blue collar workers.

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A partial explanation for this representation of many different occupations among stock investors and traders is the fact that since December of 2000, most Hong Kong citizens have been required to participate in a Mandatory Provident Fund (MPF) Scheme, which is a privately managed savings contribution system comparable to a compulsary version of the American Individual Retirement Account (IRA) system. Along with ORSO Schemes (so named for the Occupational Retirement Schemes Ordinance, under which they are regulated), which are voluntary employer-sponsored retirement benefit systems, personal savings, and a social security system, the MPF System was developed to address the problem of supporting Hong Kong’s ageing population.

Like many developed nations, Hong Kong faces the challenge of longer life expectancies and a shrinking workforce. Because of a declining birth rate, the median age of the Hong Kong population has doubled from 20 in 1967 to 40 in 2007. During this time, the birthrate (or rate of live births per 1,000 women) dropped from 24 to 10. At the end of 2008, 12.6% of the population was over 65, but the Mandatory Provident Fund Schemes Authority estimates this will rise to 27% by 2033.

As of March 2009, 70% of Hong Kong’s employed population had joined an MPF Scheme. All employees and self-employed individuals in Hong Kong aged 18 to 65 are required to join an MPF scheme, although those covered by other MPFA-approved retirement schemes, domestic and civil employees, and non-nationals working temporarily in Hong Kong are exempt from participation. In 2008, the net asset values of MPA

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74 The remaining 30% either have joined an approved alternate retirement scheme (16%), are not required to join a retirement scheme (10%), or are required to join but have not yet done so (4%). Mandatory Provident Fund Schemes Authority, “Employed Population Covered by Retirement Schemes,” http://www.mpfa.org.hk/english/abt_mpfs/abt_mpfs_bgd/abt_mpfs_bgd.html#4 (accessed 5/1/09).

Schemes reached HK$248 billion (US$32 billion),\(^\text{76}\) about 2.5% of the Hong Kong Stock Exchange’s market cap in 2008, which was roughly HK$10 trillion (US$1.3trn).\(^\text{77}\)

Schemes are divided into Master Trust, Employer Sponsored, and Industry Schemes. Each type is a way of pooling together contributions for investment under an MPFA-regulated trustee, who is responsible for investing the capital. For an employee with annual income between HK$60,000 and HK$240,000 (US$7,700-US$30,800), 5% of his or her salary is automatically deducted from payroll, and employers are required to contribute an additional 5%. Those with an annual salary below HK$60,000 are not required to contribute, although their employers are still required to contribute the 5%. For those making over HK$240,000, both employer and employee must contribute HK$12,000 annually.\(^\text{78}\)

Much like the American 401(k) system, employees can choose to invest in portfolios of funds chosen by the employer (or by the trustee if their MPF is part of a Master Trust Scheme). Portfolios are made up of a number of funds that have been approved by the Mandatory Provident Fund Authority (MPFA). As of May 2009, there were are 144 Mixed


\(^\text{77}\) Source: Bloomberg.

Assets Funds (called Balanced Funds before 2005), 104 Equity Funds, 38 Capital Preservation Funds, 29 Guaranteed Funds, 21 Bond Funds, and 4 Money Market Funds.\textsuperscript{79}

Of the MPFA-approved funds, the two that have been historically most heavily invested in equities have also been the most popular. Since the MPF system was launched in 2001, the Mixed Assets Funds, which has been invested between about 60-70\% in equities, has been by far the most popular, representing about 45-55\% of total MPF assets. The second most popular has been the Equity Fund, with between 90-98\% of its assets invested in equities. The two least popular funds, the Money Market and Bond Funds, are both 0\% invested in equities. Each has represented only about 1\% of total MFP aggregate NAV (net asset values) since 2001.\textsuperscript{80}

From 2001-2008, the percentage of assets in MPF schemes invested in equities has increased from 46\% in 2001 to 56\% in 2008, after reaching a high of 65\% in 2007.\textsuperscript{81} This fluctuation can be attributed to three factors: first, individuals making their portfolios less (or more) conservative by increasing (reducing) holdings in equity-heavy funds; second, to professional investors and trustees who decide to increase (reduce) equity exposure within the funds; and third, to gains (losses) in the equity portfolios themselves. A closer look at asset allocations of the aggregate NAVs of all MPF schemes as well as the holdings of the


\textsuperscript{81} Mandatory Provident Fund Schemes Authority, "Mandatory Provident Fund Schemes Statistical Digest."
constituent funds provides some insight into why Hong Kong MPF portfolios have taken on more risk in the past seven years.

Figure 9 shows that the proportion of total MPF net asset values contributed by each constituent fund has remained relatively constant from 2001-2008, but that Equity Funds have become more popular while Guaranteed Funds have become less so. Figure 10 shows that during this time the percent of Equities Funds invested in equities has increased, while the percent of Guaranteed Funds invested in equities has decreased. It seems that as a particular fund becomes more invested in equities, it becomes more popular, and vice versa. This trend also applies to the Mixed Asset Funds as well, which hit their peak in both popularity and percent equities investment at about the same time.

Figure 9: Percent each fund type makes up of total MPF net asset value (NAV)

Figure 10: Percent of each fund type that is invested in equities

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82 Mandatory Provident Fund Schemes Authority, "Mandatory Provident Fund Schemes Statistical Digest."
To the extent that the percent of overall MPF NAV invested in equities is attributed to shifts in the asset mix in a particular fund, one would expect that the decisions of professional investors are better represented than those of average MPF scheme participants. After all, most investors may have no idea that the Guaranteed Fund was 31% invested in Equities in 2001, and only 11% in 2008. But because popularity so closely tracked equity investment, it would seem that investors *did* have at least some idea, if not of the percentage each fund was invested in equities, at least of the higher returns of equities-based portfolios, and made their portfolio allocation decisions accordingly.

There is no question that *Mandatory* Provident Fund schemes are a major contributor to the percent of Hong Kong adults invested in equities. However, it does not appear that Hong Kong residents are passively holding stocks in externally-managed retirement accounts. First, we know that investor assets have followed equities (or equities-juiced returns) within MPF scheme constituent funds. Second, data presented above from the Retail Investor Survey shows that almost as many Hong Kong residents trade stocks as own them,

which suggests that trading stocks is part of a widespread investment culture. In the following pages, we will look at what role the media might play in reinforcing a strong culture of equity investment.
This dissertation seeks to answer the question of why so many Americans participate in the stock market. While this is not the first attempt to answer this question, it is the first to attempt to offer media as an explanation. Other studies of stock ownership have measured which characteristics predict ownership within countries, such as high income, social-connectedness, and education. But most works do not look to explain why the US households have much higher participation in stock markets than other countries. That is what this dissertation has set out to do. Using a fresh methodology from a different discipline—computer science—I sought to test whether positive bias in financial news can in part explain high stock participation. Because this effort crosses disciplines, any review of the literature will be fragmented, but broadly the existing works can be divided into two sections. First, the existing works that have used similar methodologies to different ends, and second, the existing works that have used different methodologies to achieve similar ends.

Same methodology, different question:

Political scientists and communications scholars have long used human-coded content analysis to measure the impact of media on attitudes and behaviors such as voting or buying products. The consensus has been that the media has limited direct effects both on
political behaviors and attitudes\textsuperscript{84} and even on consumer behavior, despite the persistent efforts of the advertising industry.\textsuperscript{85}

The communications literature on financial news is very limited, however the most recent financial crisis seems to have spurred some interest in the failure of the news media in uncovering the excesses that led to crisis. In 2009 Dean Starkman of \textit{Columbia Journalism Review} examined a database of financial news stories leading up to the crisis in order to determine whether the press provided effective investigative reporting to the public. He concludes that the press failed to do so, and was indeed in part responsible for the crisis. From January 2000 to June 2007, the 730 articles which Starkman coded tended to be about the earnings horserace, or were personality-driven articles, and did not do much to warn the public of an impending mortgage crisis. Even when the financial press raised concerns about a possible housing bubble, Starkman rightly concludes that “approaching the mortgage story as a consumer of investment story, [was like] trying to fight the Battle of Tarawa with a Swiss Army Knife”.\textsuperscript{86}

A handful of studies from economics and finance have attempted to measure the impact of the media on stock market prices using human-coded content analysis, and have found that major news events are not a strong predictor of significant moves in markets. However more recent studies using computer-assisted content analysis tool similar to those in this


\textsuperscript{86} Dean Starkman, “Power Problem,” \textit{Columbia Journalism Review} (May/June 2009: 29).
study have found that short-term fluctuations in polar language in the news does correspond with short-term moves in stock market prices.

In 1971, when a Professor of Finance at Berkeley, Victor Niederhoffer, who later went on to join forces with George Soros, sought to measure the impact of newspaper headlines on stock price moves. However Niederhoffer found that significant-world-event days—or those 432 days with headlines in extra large font in the *New York Times* from 1950-1966—were only slightly more likely to correspond with large price movements in the market. When he extended his analysis to crisis periods, in which five or more major headlines occurred in a one-week period, he found that crisis periods were only marginally more likely than other weeks to correspond with major stock market moves.87 Almost 20 years later, three economists sought to follow up on Niederhoffer’s work. With James Poterba of MIT, David Cutler and Lawrence Summers of Harvard started with a list of the biggest price movements since WWII, and then looked to the media explanation offered *ex post facto*, finding that most movements did not correspond to an unusual news event.88

Professor Robert Shiller of Yale University offers a plausible theory of strong media effects on stock market moves in times of crisis. Rather than looking to a single news story as a cause, he points out the undeniable role of the news media as an echo chamber when a financial market crash begins. Once panic selling has begun, the financial news media

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seeks to explain it with reasons why investors might have panicked, in turn unintentionally encouraging more investor panic.\textsuperscript{89}

More recently, three professors of Finance at the University of Richmond, Virginia, Tom Arnold, John Earl, and David North looked at whether financial news is useful to investors in identifying good long-term investments. They measured the price performance of a company’s stock in the two years before and after that company’s name appeared in the headline of a major newsweekly. After examining 20 years of headlines in \textit{BusinessWeek}, \textit{Forbes}, and \textit{Fortune} magazines, they found that a positive headline coincided with the peak in the stock’s price performance, while a negative headline tended to coincide with the trough in that company’s stock price performance. In other words, the financial press’ coverage of individual companies appears to be extremely reactive, responding to past performance rather than predicting future performance. Good news tends to follow strong stock price performance, not the other way around. The implication is that buying the stocks of companies with good press coverage and selling that of the companies with bad press coverage would be a misguided long-term investment strategy.\textsuperscript{90}

One additional study is worth mentioning for its focus on the culture of financial news in the United States. In 1999, Harvard Economist Richard Parker conducted a large-scale study measuring the climate and growing prevalence of financial news in America.\textsuperscript{91}


Although he does not examine exclusively financial newspapers, as this paper does, Parker content analyzes thousands of general-circulation print and broadcast articles to better understand how the American press covered what he sees as one of the most revolutionary changes in our economy in the past quarter century: the large scale merging of the financial industry, the trend of regulatory relaxation, and the growing prevalence of financial market transactions made possible by technology. He measures both the volume of news on financial institutions as well as how this news is framed, and much like Starkman, finds that while volume has increased, the quality of content has lacked analytical heft. Importantly, he finds most finance-related news stories can be divided into “personal finance” and “crisis” articles; two types of stories that are likely to sell newspapers without educating readers very much.

In the last decade, computer scientists have developed sophisticated algorithms that can classify a segment of text as positive or negative. Some political scientists have used computerized coding tools to classify political speeches as positive or negative. Corporations have also made use of this technology to classify online product reviews. And a handful of scholars in Finance and Economics have used these tools to measure whether fluctuations in polarity of business news impacts near-term moves in stock prices. Some market practitioners have even sought to trade stocks based on short-term fluctuations in the polarity of business news. But the present study differs in that it is the first attempt to look at long-term overall trends in polarity of financial news from one country to the next in order to explain cultural attitudes toward business.
First, I will describe the development of sentiment analysis within the field of natural language processing, and then I will address how some social science researchers have applied these techniques to business news and content related to the securities industry. The existing work has thus far focused primarily on the effect of positive news on stock prices in the U.S., and none yet has included a cross-cultural analysis of financial news, or has looked at the impact of news on stock ownership among households.

Some of the most advanced work in computerized content analysis research has been developed in the field of computer science artificial intelligence. Specifically, within the subfield of natural language processing, in which computers are programmed to read written language and identify meaning or sentiment, sentiment analysis is used to determine the polarity (positive/negative) of a given word, sentence, or passage. At the most advanced end of the spectrum, computer algorithms are “trained” on a passage of text that has previously been human coded, and “learn” to identify those elements of word use and sentence structure that typically accompany “positive” or “negative” passages. These algorithms can then be used to identify the sentiment of new passages that have not been human coded. This type of sentiment analysis has a wide variety of applications ranging from the social sciences to advertising market research of online reviews and comments. The content analysis herein, however, uses a much simplified version of the advanced capabilities of the field, in which classification occurs only at the word level.

In 1997, in the Columbia University Department of Computer Science, Vasileios Hatzivassiloglou and Kathleen McKeown developed an algorithm that classified adjectives
as positive or negative based on their proximity to other pre-classified adjectives and conjunctions. For example, if the algorithm knows that “attentive” is a positive word, then it can predict the semantic orientation of “friendly” in the following sentence: the service was friendly and attentive, based on the fact that the adjectives are joined by “and” rather than “but”. The algorithm is thus able to build a lexicon of positive and negative words and to test its accuracy against passages that have been human coded.92

Sentiment analysis has grown in popularity, and is currently used for a wide range of practical applications, such as classifying large databases of online product reviews. Only a handful of studies have used sentiment analysis to examine financial news. However one interesting study suggests that financial news has measurable effects on stock market returns and is thought to be credible by its readers. In a 2008 paper, S. P. Kothari, Xu Li, and James E. Short examine the effects of disseminating financial information to investors via management disclosures, research analysts, and the financial press on cost of capital, return volatility, and diversity of research analyst opinions, looking specifically at the effect of positive vs negative messages.93 They find that both positive and negative news have a measurable impact: “When content analysis indicates favorable disclosures, the firm’s cost of capital, stock return volatility, and the dispersion of analysts’ earnings forecasts decline significantly. In contrast, unfavorable disclosures are accompanied by significant increases


in the cost of capital, stock return volatility, and analysts’ earnings forecast dispersion.\textsuperscript{94} The authors also find that the impact of both positive and negative news from the business press has by far the biggest impact, as the market tends not to take management and research analyst statements at face value, assuming that both have an incentive to be overly-optimistic.

Another study supports the by Kothari, Li and Short’s finding that source credibility affects the extent to which financial news has an impact on stock market behavior. In two separate studies, Finance Professors Werner Antweiler and Murray Frank,\textsuperscript{95} and Sanjiv Das and Mike Y. Chen,\textsuperscript{96} measure the impact of bullish, bearish, and neutral messages posted in internet chat rooms. Neither finds that individual stock returns are predictably affected at a statistically significant level by internet chat room content. But there are at least two major differences between internet chat rooms postings and the articles published in the financial news media. First, the anonymous sources in internet chat room will be considered less objective, less reliable, and generally less trustworthy than major financial news organizations. Second, an internet chat room has a much narrower audience than a major newspaper.


\textsuperscript{96} Sanjiv Das and Mike Chen “Yahoo! for Amazon: sentiment extraction from small talk on the web,” Working paper, Santa Clara University, 2006.
Paul Tetlock, Professor of Finance at Columbia Business School, has found that negative financial news does affect broad market returns. In his 2007 paper, “Giving Content to Investor Sentiment: the Role of Media in the Stock Market,” Tetlock measures the impact of pessimistic language in the *Wall Street Journal* column “Abreast of the Market” on US stock returns, and finds that pessimism predicts low market returns (and vice versa) followed by a reversion to fundamentals. A key implication is that media content affects broad stock market prices. In a separate study of the impact of firm-specific news stories on stock prices, Tetlock, along with Sofus Macskassy and Maytal Saar-Tsechansky, finds that the fraction of negative words in news articles—especially those that focus on firm fundamentals—are a good predictor of stock price declines and low firm earnings.

The discovery that news stories have some short-term predictive power for stock market returns has attracted the attention of hedge funds that can make use of short-term price discrepancies with very large-scale trades. This has in turn prompted an increase in the academic literature on the relationship between news and stock prices. As a result the existing literature tends to focus on near-term fluctuations in positive or negative news, and has not addressed the role that an overall positive bias in reporting financial news could play in promoting stock ownership from one culture to the next. Next, we turn to the existing literature that has sought to answer why stock ownership is higher in some places than others.

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Same question, different methodology:

The existing literature offers various explanations for higher household stock market participation rates in the U.S. Typically, the first explanation offered is the rapid growth of individually-managed retirement accounts. In a working paper published in 2004, AJ Khorana of Georgia Institute of Technology, Henri Servaes of London Business School, and Peter Tufano of Harvard Business School and NBER seek to explain differences in levels of mutual fund ownership in 56 countries with a number of structural variables. The results of their regression analyses indicate that mutual fund ownership is more common in countries with stronger rules, laws, and regulations protecting investor rights. In addition, wealth, education, mutual fund industry age, and the prevalence of defined contribution plans all impact ownership levels.\(^\text{99}\)

In the late 1970’s Harvard economist Martin Feldstein came to a similar conclusion. In a cross-country comparison of industrialized economies, he found that expectations of strong state-sponsored social security benefits had a negative impact on private saving.\(^\text{100}\) So while it might seem that the lack of an adequate social security system and the emergence of defined contribution plans would “explain away” growth in household stock ownership, why, when the problem of financing the retirement of an ageing population is common to most developed market economies, has the solution been individually-managed accounts in the US and Hong Kong, and strong government pensions in France? I argue that retirement plans are in fact an intervening variable rather than the key independent variable. The key


What else is out there that might explain differences in stock market participation? First, studies from psychology and behavioral economics show a human tendency toward optimism, which in part explains why average people in any country, when given the opportunity, might play the stock market, often paying high brokerage or mutual fund fees to obtain outperformance when the laws of statistics and countless academic studies indicate a low probability of obtaining beating the index. Equities of course have a higher expected payout ratio than other asset classes like bonds, but why are equities more popular in some places than others? Cross-cultural studies have found that Americans tend to report greater optimism than other cultures, which may help explain high stock market participation here. Since stock market investing involves more skill, luck and risk than a savings account, it may require a more optimistic outlook. Second, we look at the scholarship on structural economic and political systems of governance/ideology as a possible explanation for differences in behavior.

The Behavioral Element: Human Similarities

Although traditional economic theory is predicated on the assumption that individuals act rationally to maximize their own interests, behavioral economists have shown that individuals act in systematically irrational ways because of informational and cognitive
limitations. People use ‘heuristics’ or shortcuts in order to make relatively rational decisions in an uncertain information environment, and although there is often a rational basis for their actions, the end result can look irrational from a wealth-maximization perspective. One example of this is the irrational tendency most people demonstrate toward optimistic or otherwise inappropriate expectations about future events.

The findings of behavioral economics show how our cognitive limitations and biases may make us bad investors. Daniel Kahneman and Amos Tversky modified classical economics’ Expected Utility Theory, offering a new model of for decision making in the context of risk called Prospect Theory, which takes some of the idiosyncrasies of human rationality into account. Expected Utility Theory assumes that the relationship between dollars gained/lost and utility is 1:1. Kahneman and Tversky challenge this, finding instead that losses are felt more acutely than the equivalent gains, and that people evaluate options relative to a reference point.\(^\text{101}\) When this reference point is arbitrary, such as the price one paid for a stock during a price bubble would be, attachment to reference points can be an impractical decision-making tool. Without the benefit of fundamental analysis that most people are unable or unwilling to do, most people are likely to fall victim to the very human tendency to use mental accounting to value a stock, which often leads to arbitrary valuation (such as the price one’s neighbor paid in 1999) that has little to do with the underlying or resale value of the security. Because people hate to accept losses, they often hold underperforming stocks in their portfolios, only to watch values sink lower.

People also tend to make bad investors because they become attached to the things that have belonged to them, making it even harder to sell underperforming stocks. Kahneman, Knetsch, and Thaler have found that ownership creates an Endowment Effect, as people assign higher values to goods that belong to them than to goods that do not.102 This implies that people are likely to hold on to stocks or mutual funds for longer than they should. Brad Barber and Terrance Odean have found that when it comes to the stock market, people remember information related to their past successes more easily than they recall information about failures, and exaggerate the reliability of the information they use.103 This human inclination toward risk aversion, reference point anchoring, and attachment to owned items often gets in the way of wealth maximization and makes most people quite bad investors.

In many cases, households participate in the stock market through professional investment managers, using a blended mutual fund or target-date mutual fund to mitigate the damage they can do to their own portfolios. Research has shown, however, that even professional traders are prone to becoming overconfident, although their self-evaluation becomes more realistic with experience.104 Even if most investors are choosing between a few mutual funds in a 401(k) plan offered by an employer, Shlomo Benartzi and Richard Thaler have found in a number of experiments that decisions are highly dependent upon the choices presented. Within employer-sponsored plans where employees allocate 401(k) funds

among several options, allocation to stocks increases as the number of offered stock funds relative to bond funds increases.\textsuperscript{105} And although 66\% of employers offer target date mutual funds that automatically reallocate assets towards more stable, liquid bond mutual funds and away from risky equity mutual funds as the retirement date approaches,\textsuperscript{106} this does not change the fact that most professional investors are subject to the same systematic irrationality as everyone else, and a target-date fund is only as good as the mutual funds, and the holdings, within it.

A great deal of research has shown that mutual funds do not consistently outperform the market.\textsuperscript{107} Even if a target-date fund is properly diversified, there is still greater risk in such a product than in a savings account or pension fund, where the investment risk is assumed by the employer. In the 2008 financial crisis, many target-date funds turned out to have been improperly invested in risky asset-backed securities in order to deliver the higher yields investors demanded. So why is it that more Americans invest their retirement money in the stock market than the French or the citizens of Hong Kong? Yes, the returns will exceed those of safer investments, but that is because the risks are also greater, a reality to which any American with substantial savings in a 401(k) or IRA account in 1988, 2001, or 2008 can attest.


It would seem that in the U.S., where the bare-bones Social Security system is not well funded, the objective of a retirement account should be to provide a safety net. But instead a large percentage of Americans take major risks in with their savings, some investing 100% of portfolios in the stock market. As we have mentioned before, the percent of income from government pensions for people over 65 in France is much higher than that of Americans—41% versus 70% in France. One would expect the French, with a better safety net, to take greater risks with their savings, but this is not the case.

One answer is that people have a natural tendency to overestimate their own abilities. In fact, humans may be biologically hard-wired to do so in order to maintain a stable society. Daniel Gilbert notes that optimistic expectations about future outcomes is self-propagating, as it encourages people to plant crops and have babies in a world of floods, draughts, and infant mortality rates. Those who do not plant crops and have babies do not pass on pessimistic genes (nature) and do not teach their children optimistic attitudes (nurture).

In a sample of U.S. students who were asked to assess their own driving abilities, Ola Svenson found that 82% of the students responded that they were in the top 30%. In 1980, Neil Weinstein conducted a study of college students’ attitudes towards future life events, finding that the ratio of optimistic to pessimistic responses was almost six to one.

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And finally, Tom Tyler and Faye Cook found that mass-mediated messages affect people’s perceptions of the likelihood of some unfortunate event occurring in general, but that they do not affect one’s perception of the risk it might happen to oneself. Even though many gamblers are aware that “the House always wins,” the gambling industry remains alive and well.

Psychologists have found that people gain happiness by exerting control over their lives, and a psychological explanation offers the possibility that a person may gain more ultimate happiness from the feeling of control over a self-directed 401(k) fund than he or she would from the additional money gained from a better-managed pension fund. In his book *Stumbling on Happiness*, Daniel Gilbert cites two studies that found that the average person feels more certain of winning when he is able to choose the number of a lottery ticket or throw a set of dice himself. Gilbert suggests humans are naturally optimistic because it is easiest for us to imagine good things, and optimism is self-propagating because a) optimism encourages people to get married and have babies and b) it is encouraged through social norms because it is necessary for the maintenance of a stable society. But are all humans equally optimistic, or is there a unique culture of optimism in the United States which makes Americans more likely to take on financial risk by investing in the stock market?

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Although not many researchers have tackled the question directly, the existing literature provides two important perspectives on why so many Americans have entered the stock market over the past quarter century. First, findings from behavioral economics and psychology show that people—and especially Americans—have a natural tendency toward optimism, which encourages risk-taking behavior. Second, the economic and political environment in the United States over the past 25 years has provided the necessary conditions for this natural tendency to express itself in the stock market. This partly explains why 50% of U.S. households invest in the stock market. But the story is not complete without reference to the American culture of optimism which has been so hospitable to stock market speculation, and which we have measured more precisely with a content analysis tool herein.

The Social Element: Cultural Differences

Research shows that culture plays a part in reported optimistic attitudes. Inglehart and Rabier found nationality to be a strong predictor of happiness. Finding that economic development alone does not predict national-level differences in self-reported happiness, they conclude that cultural differences offer a possible explanation. Suicide rates tend to be the highest in the ‘happiest’ nations, which could imply that people experience social pressure to feel happy when surrounded by others who profess to be so.115

Anecdotal evidence of a ‘happiness’ industry based on daily affirmations suggests that claiming to be happy has some affect one one’s state of mind. And researchers have found that self-reported states of happiness closely correspond to electrical activity in the brain that is related to happiness.116 Social mores have a real impact on people’s attitudes and behaviors, which is not surprising, but nonetheless supports the possibility that a culture of optimism influences expectations and in turn behavior.

Two New Zealand psychologists compared dispositional optimism across 22 nations, including the U.S., France, and Hong Kong in 2007. They found that overall cultural differences were small, but that people from what they classified as the most individualistic and the most egalitarian societies were consistently more optimistic.117 Somewhat unexpectedly, Americans do not have the highest dispositional optimism scores: Brazilians were the most optimistic, and Americans were only the ninth most optimistic of 22 nations, although more optimistic than the French, who were themselves more optimistic than Hong Kong citizens (Figure 11).118


117 It should be noted that Fischer and Chalmers’ egalitarianism is a cultural measure, taken from S. H. Schwartz, “Beyond Individualism-Collectivism: New Cultural Dimensions of Values,” in *Individualism and Collectivism: Theory, Method, and Applications* Ed. By U. Kim, H.C. Triandis, C. Kagitcibasi, S.C. Choi, and G. Yoon, (Thousand Oaks: Sage, 1994). Schwartz measures egalitarianism, or the extent to which individuals are seen as moral equals, along a continuum at the other end of which is hierarchy, or the extent to which individuals are socialized to comply with a hierarchical system.

The rationale behind the individualist/collectivist cultural model for optimism is that when one feels his or her fate is predetermined, or otherwise outside his control, pessimism—or bracing oneself for the worst possible outcome—is the natural response. On the other hand when one feels in control of his own destiny, optimism prevails. Perhaps the necessity of self-reliance in retirement for Americans and Hong Kong citizens would breed an optimism that leads one to take greater risks in stocks rather than playing it safe with money markets, bonds, and savings accounts.

If individualistic and egalitarian societies produce more optimistic citizens, then it would stand to reason that Americans are less optimistic than many more equal societies, but more optimistic than people living in the less individualistic societies of France and Hong Kong. Assuming public policies reflect national values, American culture is more individualistic than French culture. Higher taxes in France—such as the 20% VAT—support more comprehensive social programs, and the Socialist and Communist parties represent 32%
and 8%, respectively, of the National Assembly in 2009. Nonetheless, the defeat of the French Socialist Party by Nicolas Sarkozy in the 2007 Presidential election and the spotlight that the Greek debt crisis has shone on European finances may mark a trend in France towards embracing more capitalist values: in 2008 the maximum tax as a share of personal income was reduced to 50% from 60%, and a new law was passed ending the mandatory 35-hour work week.

The relationship between individualist versus collectivist values and culture in Hong Kong is a more complicated matter, as two seemingly contradictory value systems—capitalism and communism—have coexisted under the umbrella of Hong Kong culture since 1997. In an experiment involving Chinese, Chinese-American, and white American students, Yueh-Ting Lee and Martin E. P. Seligman found that the Chinese were the most pessimistic, followed by the Chinese-American students. They found that white American students were more likely to attribute success to themselves and to blame failures on external factors, while the opposite was true of the Chinese students. While Hong Kong is a democracy with an elected capitalist political system, the special administrative region has strong political and cultural ties to China. In 2007 Hong Kong had 6.9 million residents, of which roughly 95% were ethnic Chinese, meaning there is a great deal of immigration movement between China and Hong Kong. Despite the fact that Hong

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119 The experiment would not likely include Hong Kong residents in the Chinese sample because the study was published in 1997, the year that Hong Kong was made a special administrative region of China.


Kong’s economic policy suggests a culture of individualism, I had expected to find Hong Kong residents to use more pessimistic language in the business news media because of physical and cultural proximity to their pessimistic Chinese neighbors. However I instead found the capitalistic Hong Kong culture to be much more pervasive, and that the Hong Kong business news media was the most optimistic among the three countries in the sample.

American Exceptionalism

The American story has often been one of opportunity and self-reliant individualism, with a strong undercurrent of financial success. One manifestation of this optimistic culture is the American Dream, which has been invoked on behalf of innumerable causes. Nonetheless, many of the most popular stories of the American Dream share certain stable attributes: modest beginnings, independence, opportunity, and financial success, most often in that order. In short, rags to riches. The basic narrative of American culture is a fundamentally—some might say irrationally—optimistic story. Frequently, modest beginnings and hard work do not result in financial success. But even if the ‘land of opportunity’ has its limitations, the United States is nonetheless an often-admired model of a society encouraging, permitting, and praising upward social mobility. In *People of Plenty*, David Potter argues that economic abundance has been the most distinctive influence on American character, allowing a greater number of people to realize the promise of opportunity. This promise of equality of opportunity in America has defused the type of class-based dissension that is more typical in Europe, where economic opportunity

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implies socially-sanctioned redistribution of wealth.¹²³ Perhaps this abundance, or narrative of abundance, fosters an optimistic culture in which it seems possible that all boats can rise simultaneously.

De Tocqueville, however, writing in the 19th Century, takes a more pessimistic view of American abundance and class mobility. In volume two of Democracy in America, he observes that because one’s destiny is not fixed by birth, in America “the effort to satisfy even the least wants of the body and to provide the little conveniences of life is uppermost in every mind.”¹²⁴ When status is conferred exclusively by financial success, which can both be more easily gotten and more quickly lost than aristocratic blood, what one does not have, he strives for, and what he does have, he is in constant fear of losing. In de Tocqueville’s understanding, the attainability of success and the abundance of opportunity makes American life fraught with competitive anxiety.

The existing literature on cross-cultural optimism suggests that optimism varies by nationality, and that Americans are an especially optimistic group. Our fundamental cultural narrative is one of opportunity and success. The content analysis evidence herein, however, shows that Hong Kong culture, as measured by positive word use in the business news media, is more optimistic than American culture. We can dismiss as an explanation for high market participation among US households that Americans are simply more optimistic than other cultures. The results suggest that perhaps optimism has little to do


with investment behavior, and that it is positive attitudes toward business specifically that best predict equity investment. Next we consider whether structural differences among nations explain the high levels of stock ownership in the US.

The Structural Element: Economic and Political Differences

Individual investor participation in stock markets worldwide has been on the rise over the past two decades as a result of global political and economic changes. But national-level differences exist not only in the percentages of households invested in equity markets, but also in the rate at which this percentage is growing. Stock ownership is highest in the U.S., but growing fastest in Hong Kong. In 2007, 51% of American households, 36% of Hong Kong adults, and 24% of French households owned stocks either directly or indirectly.\(^\text{125}\)

From 1992-2004, the percentage of individuals invested in equities in Hong Kong has risen 171%,\(^\text{126}\) and in the U.S. by 37%,\(^\text{127}\) while the over the same period of time the percentage of households thus invested has been flat in France, increasing by a mere 2.5%.\(^\text{128}\)


The fields of economics and political science offer some explanations both for why ownership is on the rise everywhere, as well as why it is higher in the U.S. and growing fastest in Hong Kong. Political changes such as the fall of Communism in Eastern Europe have strengthened the broad acceptance of capitalist ideology. And globally, there have been two structural changes that may have contributed to participation in stock markets everywhere. First, technological advances such as the prevalence of home internet connections and electronic trading have lowered transaction costs, making small-scale stock investment more affordable. And second, the rising prevalence of defined contribution retirement plans, such as 401(k) and IRA accounts, has also likely facilitated stock market participation among people who might not otherwise open investment accounts. There have also been economic changes such as rising affluence as a result of globalization which have made it possible for people to take greater risks with a portion of their retirement savings. But pro-capitalist political and economic policies and ideology in both the U.S. and Hong Kong have accelerated this trend in these places. And the lack of an adequate social support system has made such investment imperative for citizens of the US and Hong Kong. In Hong Kong, the acceleration has been faster, but in the U.S., it has been at work for longer.

Technological advances have contributed to the influx of individual investors into the market worldwide in two ways. The Internet often lowers the cost of participation for nonprofessional investors by reducing the information and trading costs. Free websites such as Google and Yahoo Finance provide users with analytical tools such as historical stock and index prices as well as access to fee-based professional research. Electronic
systems have also lowered trading costs so that companies like E*Trade can offer low-cost online brokerage services. Previously, access to a professional broker with investment research and advice often required minimum balances and relatively high transaction fees. Moreover, as capital markets have developed in emerging economies all over the world and American Depository Receipts (ADRs) have become widely available, individuals could buy securities issued in other countries, opening up new avenues of investment.\textsuperscript{129} The U.S. retail brokerage industry has experienced material changes in commissions for stock trades, and ease of low-cost access to information, making it increasingly possible for more people to access more international stock markets at lower costs. Now, research, brokerage, and more advice then many would care to consult can be accessed cost-effectively by anyone with Internet access. But technology alone doesn’t explain national-level differences in stock market participation, since after all it is equally available in each of the countries under study.

What about political-economic ideology? Since the fall of the Soviet Union, free market capitalism has increasingly become the prevailing and unchallenged global ideology. In 2009, the 57-member World Federation of Exchanges includes the Shanghai, Ljubljana (Slovenian), and the Warsaw stock exchanges, and the organization’s twenty affiliates include the Moscow Interbank Currency Exchange and the Russian Trading System Exchange.\textsuperscript{130} Capital markets have become a standard way for businesses in emerging markets to access global capital, and for investors in stagnant developed economies to


invest in the higher growth found in emerging economies. From 1988 to 2010, the market capitalization of the emerging markets and Asia-Pac ex-Japan regions went from 4% of total world market capitalization to 27%.\(^{131}\)

However it should be briefly noted that recently in response to the upheavals in many U.S. and global derivatives, and real estate, markets in 2008-10, free market ideology appears to have lost some of its unchallenged allure, and market deregulation has slowed and in some cases reversed. The most recent global markets crash, caused in part by heavy leveraging and a lightly-regulated structured products market in the developed world, has triggered what may become a sustained backlash against unbridled markets. In reaction, heavy government intervention to prop up failing markets and calls for more regulation to protect markets appear in some environments to be gaining ground. In the US and UK, the government has become the de facto owner of some of the largest financial institutions, regulating everything from executive pay to short sales and electronic trading methods. But calls for stronger market regulations are not really a reversal of the trend toward greater reliance on free markets. In fact, the reaction of the US and UK governments speak volumes about how important global asset markets have become to the functioning of society. Heightened government oversight and regulation is unlikely to discourage small investors from turning to the stock market to preserve retirement savings, and if anything should make the market a safer place for them.

\(^{131}\) Based on weight in the MSCI All-Country World Index, a basic benchmark for international equities. Free float includes only shares available to international investors, and thus would exclude shares available only to domestic Chinese buyers.
But it does not seem that free market capitalism and ideology alone predict investment in the stock market. Hong Kong, whose economy consistently ranks first in the Economic Freedom Index published by the *Wall Street Journal* in and the Heritage Foundation, has a lower investment rate than the United States. But the Hong Kong economy has lagged the U.S. and France’s in terms of industrialized development, and has been rapidly making up for lost time. Hong Kong now ranks 15th in terms of GDP per capita, still behind the US (10th) but well ahead of France, which ranks 39th.\(^{132}\)

While the Hong Kong Stock exchange was founded in the 1880’s, Hong Kong’s economy did not take off until the latter half of the 20th century. The development of a middle class akin to that of the United States in the 1950’s was slower due to lack of basic social services such as schools and hospitals and economic inequality. According to the United Nations’ 2009 Human Development report, during the 1992-2007 period, Hong Kong ranked behind both the US and France on the Gini Coefficient, an index of economic inequality.\(^{133}\)

A common structural explanation from the disciplines of Economics and Finance for the greater number of American households owning stocks is that Defined Contribution retirement plans have driven stock investment in the United States. By extension this would suggest that the more recently-introduced MPF schemes have driven the sharp gains in stock investment among adults in Hong Kong. Looking at Figure 12, it does seem that


since 1989, participation in employer-sponsored retirement plans has driven stock ownership in the United States. The dotted line representing the percent of households who own stock inside of employer-sponsored retirement accounts nearly perfectly mirrors the light grey line representing the percent of households owning stock both directly and indirectly. But Figure 13 shows that MPF participation and stock ownership are not as closely related in Hong Kong. Soon after MPF schemes were introduced in 2000, the percent of Hong Kong adults owning stocks decreased 23% from 2000-2003, most likely in response to falling markets after internet bubble burst. From 2003-2007, a time when enrollment in MPF schemes has leveled off, the growth in stock investment has risen sharply. The percentage of Hong Kong’s employed population enrolled in MPF schemes has grown steadily since the schemes’ introduction, while growth in the percentage of adults owning stock both preceded the arrival of MPF schemes and declined and rose rapidly independently of MPF growth.

Figure 12: Percentage of U.S. households owning stock directly and indirectly compared with the percentage of households owning stock in employer-sponsored retirement accounts: 1989-2007.135

135 Employer-sponsored retirement accounts include defined contribution plans such as 401(k), 403(b), or 357 plans an employer-sponsored IRAs (SEP IRAs, SAR-SEP IRAs, and SIMPLE IRAs)


Figure 13: Percentage of Hong Kong adults that own stock compared with the percentage of employed population enrolled in an MPF scheme: 1989-2007.

Defined Contribution plans encourage more direct participation in the equity markets in two ways. First, automatic enrollment plans transfer capital to the markets that might otherwise go to savings accounts or into the consumer economy. In 2006 President Bush signed a pension overhaul bill that encourages companies to automatically enroll employees in 401(k) plans and to increase employee contributions annually. The bill also allows the employer to offer investment advice to participants through a chosen plan provider, something that employers were previously afraid to do to avoid legal liability for investment losses.136 Hewitt Associates reports that in 2007, 44% of employers surveyed offered automatic enrollment in Defined Contribution plans to new employees, with 30% of the remaining respondents expecting to offer such automatic enrollment in 2008.137

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Second, Defined Contribution retirement plans increase the number of households participating in equity markets as they encourage awareness and knowledge of the financial markets. Because the format forces beneficiaries to choose between investment vehicles, a Defined Contribution retirement account may be a catalyst for self-education about the markets through the financial news media. Although not all employees who have been automatically enrolled in 401(k) plans will become followers of the stock market, beneficiaries have a newfound financial incentive to follow market news because it directly influences their retirement wealth. Whereas market fluctuations influence pension reserves as well, the relationship between the stock market and the number of dollars in an employee’s account is not as precise as it is in the case of defined contribution account, as the employer has a responsibility to meet fixed pension obligations—at least in theory if not always in fact. Even if most employees are minimally engaged in the investment process and rely on target-date mutual funds, some who might otherwise be unaware gain entrée into the world of stock markets, leading to further investments of savings or other financial assets in equity markets.

Defined Contribution plans have gained ground in recent years in relation to Defined Benefit plans. According to the U.S. Bureau of Labor Statistics, the percent of full-time employees participating in Defined Benefit retirement plans has dropped from 1999 to 2006 from 25% to 23%, while the percent participating in Defined Contribution plans has increased from 42% to 51%. While pension plans have been slow to churn off because

employers must wait for beneficiaries to die or accept alternate retirement packages, new plans being issued by employers are 401(k) and other Defined Contribution plans.

Defined Contribution plans have prevailed over Defined Benefit plans because the former satisfy the interests of corporations—and theoretically, the interests of the enterprising *homo economicus* as well. Employers can remove large, variable pension liabilities from their balance sheets, while the individual, who has the greatest incentive to manage the portfolio wisely, is in control. Moreover, over the last quarter century, globalization has put pressure on American corporations, forcing them to reduce their cost of labor in order to remain competitive. David Swensen, Professor of Finance at Yale University notes that employers prefer defined contribution plans because they represent a limited, well-defined liability, while employees like them for the simple reason summed up by the old adage: a bird in the hand is worth two in the bush. Most people prefer to have a dollar in a 401(k) account today than an unclear benefit far in the future.\(^{139}\)

Another possible contributing, though not likely decisive, factor in the higher levels of participation in the U.S. is the widespread practice of granting stock-option-based compensation to employees. According to the U.S. Bureau of Labor Statistics, 8% of private industry workers had access to stock options in 2003.\(^{140}\) Although options-based compensation is more common among management and executive-level employees, it


represents yet another avenue of introduction to the stock market for nonprofessional investors.

The existing literature in the fields of history and political science suggest that Americans simply hold more pro-capitalist views than other cultures. Although they do not relate their findings to equity ownership, in their 1985 study, *Equality in America*, Sidney Verba and Gary Orren found that Americans are substantially more pro-capitalist than Europeans and the majority of the rest of the world. Verba and Orren distinguish between political and economic equality, noting that Americans rank among the highest internationally in all measures of political equality and among the lowest in measures of economic equality. They further distinguish between support for equality of opportunity and result, finding that Americans are much more supportive of the former, at the expense of the latter since “the notion that everyone should have an equal chance to get ahead glorifies personal achievement”. In a comparison between the opinions of leaders in the U.S. and Sweden, Swedish big business leaders, the least egalitarian of the sampled leader groups, expressed considerably more egalitarian views on income disparity than even the most radical left-liberal American leaders. Income redistribution is surprisingly unpopular among all groups in the United States, as it is an affront to equality of opportunity, which is at the core of the American notion of equality.

In *Why Americans Hate Welfare*, Martin Gilens notes that the terms welfare and socialism carry negative connotations in the U.S. despite the fact that Americans do approve of a broad array social welfare programs.\(^{145}\) Welfare, which is comprised of Temporary Assistance for Needy Families (TANF) and General Assistance (GA), has a surprisingly high profile considering that those two programs constitute only 1.7% of all government spending.\(^{146}\) Universal state-supported healthcare, common in most Western democracies, has not enjoyed similar public support in the U.S. Until very recently, the American public healthcare programs, Medicare and Medicaid, have been limited to veterans, the elderly, the disabled and the poor. It remains to be seen whether President Barack Obama’s new broad-based healthcare plan will become the new norm, or whether it will be reversed or watered down under future political leadership.

Here in the U.S., a broad shift in public policy has occurred since the 1970’s, visible in the decline in labor unions\(^{147}\) and New Deal social benefits, to the general success of the more conservative party in presidential elections. School vouchers and health-savings accounts are two recent examples of free market solutions introduced to address problems that previously typically fell under the purview of the federal government. A looming question remains as to whether the massive new spending by the Obama administration to combat the most recent recession will be embraced or rejected by the American voting public.


\(^{146}\) Ibid, 16-17.

For 27 of the last 39 years, the Republican Party has had a President in office. Republicans controlled the Senate from 1995 to 2001 and then again from 2002-2007, and the House of Representatives from 1995 to 2007. George W. Bush was reelected in 2004 under the slogan of “the ownership society”.

In the past 40 years, public support for corporate, capital gains and federal income tax rates for the wealthiest Americans has come down substantially while public spending on social programs for the neediest families has declined. As Figure 14 demonstrates, the percentage of income tax for the highest tax bracket has fallen from 90% in 1950 to 35% in 2006. The corporate tax rate has also dropped, from around 50% during the 1950s through the 1970’s to around 35% from 1988-2004. While the effective income and corporate income tax rates have remained relatively stable throughout this time, the hypothetical tax rates proposed and approved by elected officials do still tell us something about movements in public sentiment regarding taxation. Since 1997, the maximum capital gains tax rate has been lowered a number of times from 28% to 15%, where it is now. At the same time, average monthly benefits under Aid for Families with Dependent Children

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152 Since 1979, the highest effective Federal income tax rate for the top quintile by income was 17.5% in 2000; the lowest point was 13.7% in 2003. The income rate for corporations in the highest quintile was 5.7% in 1979 and the lowest was 2.1% in 1982.
steadily decreased from 1970 to 1995 (AFDC was dismantled and replaced by TANF in 1996).\textsuperscript{154}

Surveys show that Americans have become more materialistic in the past 30 years. In a Roper Center for Public Opinion question about what constitutes “the good life, as far as [you] personally are concerned,” the percentage of American answering “a lot of money” has increased with time. In 1975, 38% of Americans gave this answer, while 48% did so in 1984. By 1994, 63% of Americans gave this response.\textsuperscript{155}

There is evidence, however, of a retrenchment in public opinion: The trend in recent years toward corporate deregulation has been halted and reversed by the responses of the U.S. Treasury and Federal Reserve to the current economic crisis. Across the world,

\textsuperscript{154} Ibid: 19.

governments have responded to the current credit crunch with monetary and fiscal intervention, and with it, more regulatory oversight of the banking systems and of corporate governance. Even Hong Kong announced in October 2008 that it would introduce financial regulation in order to stabilize markets. Also in October 2008, Alan Greenspan, widely lauded as a hero of American capitalism, was called in front of a U.S. congressional panel to respond to accusations from U.S. senators that his laissez-faire monetary policy helped precipitate the current credit crisis.

A further indication of the limit to the popularity of free market ideology is the public backlash in reaction to the former President George W. Bush’s proposal for a partial privatization of Social Security. Americans have always valued independence, and in many cases social welfare programs have drawn public ire, but Social Security has remained an exception, winning broad public support since it was introduced in 1935. In The Rational Public, Benjamin Page and Robert Shapiro note that except for a brief “right turn” directly before Reagan took office, American public opinion has consistently supported government spending on social security and other programs such as education, the environment, cities, and medical care. Social security has sustained high levels of popularity in a nation otherwise suspicious of social welfare because it benefits a large

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number of Americans, it benefits a ‘helpless’ population, and there is a direct connection between contributions and the benefits received at the individual level.\textsuperscript{158} While Americans rejected Bush’s proposal for partially privatized Social Security, this does not represent a retrenchment of support for free enterprise, but rather betrays a deep ambivalence about the correct scope of social welfare policy in a proudly capitalist culture.

Sociological analysis of consumerism’s pervasiveness in America sheds some light on the success of the retail securities industry in this country. Both Michael Schudson and Gary Cross agree that consumer culture has thrived at most times in the United States because the consumer industry has been flexible and responsive to people’s needs both to express themselves and to seek comfort in traditionalism.\textsuperscript{159} Cross argues that anti-consumer or collective movements have not succeeded in being as conducive to self-expression or have followed the inherently anti-populist jeremiad tradition, and therefore were never able to compete with the siren call of consumer culture, or to capitalize upon times of national strong anti-consumer sentiment such as the 1960s.\textsuperscript{160} Mutual fund and stock brokerage industries are popular for the same reasons that other forms of consumer culture have often prevailed: they are extremely responsive to consumer needs and long-term goals, providing innumerable unique products such as Socially Responsible Investing (SRI) vehicles that allow for self-expression but play into consumers’ concerns about planning for the future.


\textsuperscript{159} Michael Schudson, \textit{Advertising: The Uneasy Persuasion, Its Dubious Impact on American Society} (Basic Books: 1986).

In summary, while there are many structural forces at play that have conspired to allow equity ownership to spread in the US—technology, a conservative tide in politics and public opinion, and with a retirement planning structure promoting equity ownership—these structural factors themselves are also made possible by pro-business attitudes and culture that are in part communicated through the media.

The Missing Element: Media Effects

Although it is difficult, if not impossible, to establish causation between media messages and behavior, if we understand the media as a reflection of and a forum for development of a group’s social norms, it becomes clear that a study of the media is a way of measuring culture. And as Bernard Cohen once said, the media “may not be successful much of the time in telling people what to think, but it is stunningly successful in telling [people] what to think about”.161 In other words, the media has a powerful ability to frame issues, thus setting the terms of the debate.

In 1987 Shanto Iyengar and Donald Kinder conducted an experiment measuring political attitude change based on television news clips and concluded that the mass media do in fact shape opinion by priming, framing, and agenda setting.162 Priming and agenda setting refer to the media’s ability to set the tone of political—or financial, as it may be—debate by defining the relevant issues against which new data will be evaluated. Framing refers to the

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media’s ability to cast a debate or issue into a certain light using certain words, images, or narrative frameworks, like the American Dream. Certainly the financial news media have set the agenda by bringing more financial news into the living rooms of Americans. The very act of focusing so much media attention on asset markets serves to make media consumers feel as though the stock market is something worthy of attention. And as cable networks like CNBC and the FOX Business Network, vying for viewers in a fragmented media market, try to create compelling and dramatic stories about hot stocks and overnight fortunes, the talk of easy money plays into our natural tendency to overestimate our ability to outperform their peers.

During stock market bubbles and crashes, the business news media play a special role as informers and as participators by both sounding the alarm and feeding the fire. Large scale bubbles are not possible without the news media, or some form of news dissemination. Prices going up alone are not enough to cause a bubble. Investors need to feel that there are greater fools than themselves willing to buy at a more inflated price, and during a bubble the business news media create that narrative of greater fools, making even the most level headed investor feel like it is he that is the greater fool for not participating in the abundant wealth creation.

As previously mentioned, Yale Economist Robert Shiller describes the role of the media in stock bubbles as an echo chamber, causing what he calls ‘attention cascades’ of either positive or negative news. During extreme highs and lows, it would seem that the media’s influence is strongest since the audience and uncertainty are both at a high point.
Moreover, people tend to trade on news rather than company fundamentals when volatility is high, leading to what many call a “macro driven” rather than a “fundamentals driven” market. In a macro-driven market, asset prices move up and down simultaneously rather than based on the fundamental value of the underlying securities. In October 2008, at the height of the credit crisis, CNBC reported its highest daytime home viewership in its history. In fact, it seems even professionals are not immune to media influence during bubbles. A communications and sociology scholar from the City University of London, Aeron Davis, has found that media messages influence even elite actors in financial markets. In his study of fund managers on the London Stock Exchange, Davis notes that even these rational actors “par excellence” exhibit mass and irrational behavior in stock market bubbles, when the threat of being fired for underperforming a benchmark index lures them into the inflated price bubble despite their better judgment. While the stakes of underperformance are lower—a casual investor will not lose his job for market underperformance—perhaps households act no differently, and have also entered the market in recent years against their better judgment. News articles describing great riches achieved through stock markets could represent an irresistible siren call for market participation.

This dissertation seeks to explain the equity market participation by looking at whether positive business news can explain high levels of investment among U.S. households. While other cultures, like those of France and Hong Kong, share our penchant for


optimism, the dream of success holds a special place in American culture. In their study of
cross-cultural materialism, Ger and Belk found that Americans were more materialistic
than all the western European and Asian countries in the study, and were found to be the
second most materialistic of the 12 nations included in the study, outranked only by
Romanians; the French were the second least materialistic of the 12 countries in the
sample. The media does not shape values on its own, but it reinforces preexisting
cultural beliefs and values, since advertisers who provide economic support would (and do)
withdraw it immediately as soon as content breaches culturally-accepted boundaries.

The culture of the American Dream promises to provide the opportunity to achieve
financial success, and this is how the conversation about equity market investing in
America has been framed: as an opportunity rather than a safety net, despite the fact that
the pool of capital that most Americans have to invest with is their safety net. The
American culture of optimism at the expense of collective action and low-return security is
reflected in our news media, and is a decisive factor in explaining why so many more
regular Americans then their French counterparts choose to invest money in the stock
market. And while Hong Kong, rather than the US, turned out to be the place with both the
highest proportion of positive news and the fastest growing retail investment industry, this
finding still suggests that positive news and stock market participation do go hand in hand.
Positive word use is part of a larger narrative, wherein the degree to which a country’s
attitudes are pro-business is the best predictor of growth in equity market participation.

165 Guliz Ger and Russell W. Belk, “Cross-cultural Differences in Materialism,” *Journal of Economic Sociology* 17
I conducted a computer-assisted textual content analysis of financial news from 1985, the earliest date from which online databases are available, until 2008. In each market, I chose at least two news sources—an exclusively financial newspaper and the business section of a more mainstream newspaper—and measured the proportion of total words published each month that fell under the classification of positive, negative, long-term investing, short-term investing, and scandal words.

In order to measure preference for long-term investment strategies, the program searches for words typically associated with a value-based investing approach—or one that determines price based on a stock’s fundamentals and is associated with long-term investing. In order to measure affinity for short-term investment strategy, the program searches for words associated with technical strategy, the antithesis to value investing, in which a stock’s value is measured not by its fundamental value, but by whether or not it can be sold at a higher price. Technical Strategy is an instrument used by those with a short-term investment horizon, as it relies on expectations about the behavior of other market participants in the near-term.

It was sufficient for this analysis to look at the proportion of words from each category appearing in a given publication by month, rather than by day or by article, because the
goal was to compare the proportion of positive and negative words appearing in financial news a) to the proportion of households holding stock, which is measured only every few years, and b) to the general level of the stock market. Since the purpose was not primarily to measure the relationship between news and stock returns, monthly—rather than the daily or weekly—changes in stock market indices provided an ideal unit of analysis. If a correlation between market returns and positive or negative words existed, I wanted to measure it only broadly.

Computer vs. Human Coded Content Analysis

There are both benefits and drawbacks to using a computer-coded (as opposed to a human-coded) textual search of digital archives. One must therefore select the tool that will most accurately measure the concept in question. Since the goal of the current project was to measure a few straightforward concepts in multiple sources over a long period of time, I chose a computer-based approach. Automation allows a single researcher to vastly expand the scope of analysis, covering more newspapers over longer periods of time more quickly and at a much lower cost. Moreover, measurement of words with polar (i.e., positive and negative) meanings in financial news is well-trodden ground within the field of computer science. A further benefit of computer-driven analysis is that it is objective; whereas a manual coder may have expectations that can influence the outcome of the analysis, a computer simply counts words. An obvious drawback is that computer programs run the risk of being overly objective, miscoding words in the absence of context. In order to draw
conclusions from the results, the necessary assumptions are: 1) the number of times a word appears in a text can meaningfully measure the prevalence of the concept in question, and 2) the dictionary of words chosen reliably represents the concept.

When using a computer-assisted rather than manual method for coding text, the tradeoff a researcher makes is for greater objectivity at the expense of reliability. The researcher runs the risk of miscoding documents because the computer runs text-based searches irrespective of context, and cannot use judgment in the case of obvious errors as a human coder can. This type of miscoding, while not ideal, will at least be unsystematic. Moreover, it would seem that when coding large volumes of text, this lack of reliability could be reduced to a predictable margin of error to be taken into account in the interpretation of results. In fact, in a comparison of the reliability of computer vs. human coded texts Nacos et. al. find that computer-assisted content analysis is effective for large quantities of text. For the purposes of this analysis, the benefits of conducting a content analysis on a larger scale outweigh the drawbacks of possible coding errors. I have attempted to anticipate and correct for coding where possible by selecting and augmenting a dictionary that is specific to the financial context, and then running (concordance) tests to determine roughly the reliability of coding.

As communications and media studies scholar David Deacon points out, text-based searches of digital news archives inherently limit the analysis to one of terms rather than

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concepts, and ignore the visual component of end-user news consumption. While it is true that computer analysis limits me to measuring terms rather than concepts, concepts are still expressed through terms, and in the case of this project, the underlying concept in question is in fact best captured by a measurement of terms. While measuring the total number of conceptually positive or negative articles appearing in a given newspaper could be an interesting smaller-scale experiment (due to the volume limitations that human coding usually imposes), in an increasingly global financial news environment measuring the actual terms used indicates how different news sources cover the same stories. Even if there are more positive than negative stories or concepts in the newspapers of a given country, if the proportion of positive words used to describe both negative and positive stories/concepts is higher, this is meaningful in and of itself. In fact, since most news articles contain both optimistic and pessimistic concepts, it is not clear that classification at the article level would be a preferable unit of analysis, even if it were feasible. While computer scientists have developed algorithms that make it possible to classify polarity at the sentence or paragraph level, it would not be possible to cover the very large amount of data chosen for this project using these algorithms. Thus in an imperfect world, I have done my best to limit my interpretation of the results to an understanding that more positive words means more positive words, not necessarily more positive news events.

The choice of words, rather than clauses or articles, as the unit of analysis, in fact avoids undue reliance on computer programs to extrapolate meaning from a given statement or article. In my experience, even a carefully-read newspaper article is often not obviously

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classifiable as wholly positive or wholly negative by a human coder. Certainly a computer can hope to do no better. I would rather know for certain that a given publication has a certain proportion of positive and negative words than be less sure that an algorithm has properly classified the articles or clauses in my sample. This way, the results show whether the proportion of all polar words (compared to neutral words) exceeds that of another publication.

Deacon also criticizes text-based searches of digital news archives for ignoring the visual component of end-user news consumption. Indeed, Ithiel de Sola Pool finds that the average newspaper features over 160,000 words, but clearly the largest 20 or so words that make up the front-page headlines have a greater impact on real-life readers. However the digital archives from which I draw my data do not include advertisements or classifieds, and only in some cases include numerical market data (such as lists of bond yields published in the Wall Street Journal) which do not appear to affect the results materially in a particular direction.

Deacon also criticizes computerized content analysis for lulling would-be critics into a sense of false complacency, and cautions against two common sources of error. He argues that people tend to overweight the reliability of technology in computer-driven analysis, forgetting that the quality and volume of coverage can vary, producing inconsistent results. First, Deacon points out, because of improving technology, searches for articles in digital

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news archives published in recent years will yield more articles than searches of articles published in the distant past. Therefore any sharp increases in the incidence of terms should be interpreted with caution, as it may indicate more aggregate coverage, not greater frequency of the term’s use. Second, he adds that different digital archive collections (such as LexisNexis vs. Factiva) may yield different results because of varying quality of coverage. But since I downloaded each month’s data for each newspaper manually, frequently drawing contiguous months of the same publication from both Factiva and LexisNexis, I know that the average number of articles for each publication remained relatively consistent both over time and across archives. Amazingly, in a given month and for a given publication, LexisNexis and Factiva searches frequently produced the exact same number of articles, which suggests both sources use the same underlying data. While there were some monthly searches which produced no articles at all, and others which produced suspiciously small samples, this was an infrequent occurrence and was largely confined to two French publications: Le Monde and Les Echos. Moreover, since the content analysis software measures proportions rather than aggregate word counts, and any outliers were checked for sample size, smaller samples should still be representative.

A computer-assisted approach proved to be the most appropriate for this analysis, because it allowed me to examine newspaper articles far enough back in time to capture significant historical stock market fluctuations against which I could compare the current economic crisis. Having made this choice, it is important to recognize the limitations of the approach.

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with respect to reliability, and to take precautions to ensure that the chosen technology would produce the most reliable results possible.

Reliability

K. Soothill and C. Grover divide the measurement errors typical of digital text-based analysis into false negatives and false positives.\(^ {171} \) An example of a false positive would be an article in the Wall Street Journal about Barack Obama’s electoral victory, which might be coded as contributing to the overall level of positive news, but which does not give much insight into the Journal’s coverage of the stock market. Nonetheless, it is still relevant to the present analysis if the Wall Street Journal features more stories about the electoral winner than the loser in coverage of the U.S. 2008 presidential election when compared with Les Echos coverage of France’s 2007 Presidential election.

An example of Soothill and Grover’s false negatives would be the omission of a story about the upward trajectory of the stock market over the past fifty years because it does not contain any of the designated “positive” words. Soothill and Grover consider false negatives to be the more insidious of the two, because false positives can be weeded out of the data, while false negatives would more likely go unnoticed.

Of course some measurement error is inevitable, but I have mitigated the risk of consistent coding errors in a number of ways. The first line of defense is the sheer volume of data being examined. The likelihood of systematically biased results is lower given that this study analyzes two papers in each market from anywhere from six to fifteen years each. Next, I decrease the likelihood of generating false positives by limiting the content analysis to financial newspapers and to the business sections of more mainstream newspapers, and by using a dictionary of polar words specifically developed for a financial context. In order to avoid false negatives, I developed addenda to the lists of polar words based on results of word frequency counts in a sample of the data, adding those words that occurred often, and that most often accurately identify an optimistic or pessimistic statement about the stock market.\(^\text{172}\)

Some miscoding is inevitable because positive words do not necessarily indicate an optimistic tone and vice versa, but this content analysis measures both sides of the same coin—positive and negative words—and aims to measure a very straightforward concept.

Generalizability

One could make the argument that even if a content analysis could accurately measure newspaper bias, news print is only one part of a larger media landscape which includes magazines, television, and the Internet among other things. It is true that in the U.S.,

\(^{172}\) For a more complete description of the dictionary used for this project and the methodology of the addendum, please see ‘Dictionaries’ sub-section of the ‘Data and Methodologies’ chapter.
newspaper readership has been declining for a number of years, and the Pew Center for People and the Press found that only 38% of Americans read the print version of newspaper regularly in 2006, down from 58% in 1994. Nevertheless, newspapers are a popular source for business and financial news. The 2006 Pew survey found that 26% of Americans mostly get their news about business and finance from newspapers, just below the 29% who get it from television and well above the 14% who get it from the Internet.173 And of those who read the newspaper “sometimes” or “just about every day,” 60% “spend a lot or some time reading” business and financial news, up from just 44% in 1985. 174 It seems that despite declining readerships, newspapers are still an important source for financial news, and a content analysis of newspapers is a quantifiable—if imperfect—way to compare media coverage across cultures.

According to a retail investor survey conducted by Hong Kong Exchanges and Clearing Ltd. in 1997, newspapers were the second-highest source of influence on making investment decisions among stock investors, behind only “personal study”. 27% of stock investors cite “newspaper commentators” as a “major source of influence,” while 45% cite “personal study,” 21% cite “friends/relatives,” 8% cite “brokers/investment advisors,” 2%


cite “TV commentators,” and 1% cite “financial magazines of periodicals.” While this data is from 1997, and may very well have changed in the ten intervening years, newspapers do seem to be the financial media of choice among Hong Kong citizens, whereas in the U.S. television increasingly dominates the financial news landscape.

I chose newspapers for this analysis, rather than business news magazines, television, or financial websites because historical data is more accessible for newspapers and because general news dailies covering a broad array of topics are likely to reach a broader audience than business magazines. While a slightly higher percentage of Americans get their financial news from television than from newspapers, and financial internet sites report ever-growing ranks of users, historical archives of cable television broadcasts and internet publications are not reliably maintained.

Given the increasing popularity of the web as a means of transmitting news, some might wonder why I chose to study the old-fashioned newspaper. Indeed, *WSJ.com* reports that from 2007 to 2008, average monthly reach to college-educated users grew by 149%, Yahoo Finance by 33%, Reuters.com by 20%, and MSN Money by 13%. However, the analysis herein looks at news article from 1985, many years before online news sources existed. Moreover, the experience of reading online news is different from the experience of reading a newspaper. Although this data is not published by news sources, I suspect that

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substantial traffic on online news sites is driven by single stories passed from one user to another, rather than by users reliably visiting a website to read the daily news. But even if users are reliably reading a financial news site, in checking a headline, or the performance of the market, a user is likely to get a sense of that day/hour/minute’s relevant news from scanning the ever-changing AP headlines rather than from reading articles in a linear way. This user experience does not lend itself to the type of computerized content analysis of machine-readable text used in this analysis. If people aren’t reading the article’s full text, it does little good for computers to read it. A better way to analyze use of online financial news would be to content analyze real-time headlines. This would involve scraping real-time headlines off websites, and would require a level of computer science expertise that exceeds my own.

One also might make the case that the media have limited effects on decision-making, and that any correlation between positive word bias in the U.S. media and American household investment patterns represent a spurious relationship, caused by some other factor influencing both, such as public or elite opinion about the stock market. I do not refute this, and indeed consider the media to be but one (measurable) part of an investment culture which is unique to each place and composed of political and economic policy, a historical national narrative, and consensus opinion, all of which should be represented through the media’s treatment of financial news. According to Benedict Anderson, language and national character are interdependent, and the press is essential to the building and maintenance of a national identity. Anderson likens the act of reading the national
newspaper to a prayer-like mass ceremony that builds an imagined community. For that reason, I believe the content of newspapers can be an accurate reflection of national character, and at the same time has the power to influence behavior by defining the new or reinforcing the old terms of the conversation.

Content Analysis Software

For this project, I use the Yoshikoder, a simple multilingual content analysis program originally developed by Will Lowe as part of the Identity Project at Harvard University’s Weatherhead Center for International Affairs. The program allows users to upload text files to be content analyzed as well as lists of words to be searched for. The Yoshikoder then records how often each word (or pattern) and group of words (or category) appears in the texts, measuring both word counts (or frequencies) and the proportion that each pattern or category represents of total words in the text.

I decided in favor of a simple program that finds and counts words and categories of words like the Yoshikoder, rather than a more sophisticated program such as the General Inquirer, which determines word polarity by disambiguating word meaning at the clause level, because the Yoshikoder allowed me to conduct a comparative content analysis of both English and French texts. While the General Inquirer has been used successfully by

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179 The Yoshikoder is available free of charge, and is published under the GNU Public License at: http://www.yoshikoder.org/index.html.

other researchers to content analyze financial news, and can differentiate between “happy” and “not happy,” it works only for English language texts, and therefore was not a suitable candidate for this analysis.

In a computer-assisted content analysis, a dictionary is the group or groups of words for which the computer program searches. The Yoshikoder allows users a great deal of freedom upload, test, and then build upon dictionaries of words. Existing dictionaries can be uploaded and then modified by adding, subtracting, or editing patterns and categories. The program can also produce a concordance, which is a list of patterns discovered in the text in the context in which they were found. This makes it possible to check the reliability of a particular dictionary’s categorizations by measuring how often dictionary words are found in the expected context.

The Yoshikoder allows me to see not only the proportion that the pattern “happy” makes up of total words in the text, but also the proportion that the “positive” category of patterns (of which “happy” is one) is of total words. The concordance then shows the context in which the Yoshikoder has found “happy” to occur in the text. This way I can see if the pattern “happy” is reliably representing the concept Happy as it was classified in the dictionary. Since it was classified in the Positive category, the dictionary is working reliably if “happy” appears in a positive context, as in “we were happy to see the results,” but it is not working reliably if “happy” appears in a negative context, as in “we were not happy

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with the results,” or “lower sales of Happy Meals were a drag on McDonalds’ earnings this quarter”.

Dictionary

For the basic, underlying dictionary of positive and negative, or *polar*, words, I used a polarity dictionary developed by Tim Loughran and Bill McDonald. Having found that widely-used lists of polar words substantially misclassify financial texts, Loughran and McDonald of Notre Dame’s Mendoza College of Business develop an alternative list of 1,202 negative words and 264 positive words based on language used in 10-K filings, which are the annual reports that all publicly-owned companies are required to file with the Securities and Exchange Commission.\(^\text{182}\) The list of negative words is considerably more comprehensive than the positive because negative words have been found to be more reliably coded in computer assisted content analyses of financial news.\(^\text{183}\) This is because positive words are more often negated to express negative concepts than negative words are negated to express positive concepts. For example, it is more common to come across “did not win the customer” than “did not lose the customer”.

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The Harvard-IV-4 Psychological Dictionary, used by the General Inquirer, is a highly-respected and widely-used dictionary with categories such as Negative, Positive, Strong, Weak, etc. In their textual analysis of over 40,000 10-K reports filed between 1994 and 2007, Loughran and McDonald find that of the roughly 2,000 words classified as Negative, over 50% are not typically used in a negative sense in a financial reporting context, and thus are misclassified. They therefore set out to create a dictionary of negative words that would produce more reliable results in a financial context.

When building a dictionary, in order to account for inflections, or different versions of the same word (e.g., “broke,” “broken”), one must choose either to use an exhaustive list of conjugations for each word or to use stemming, in which the program searches for all forms of the root word (“brok*”) regardless of the suffix attached to it. Loughran and McDonald choose the former, because suffix ending can materially affect the meaning of the root word (e.g., “broker-dealer”). When generating the dictionary, they chose words that appeared in at least 5% of all 10-K reports filed with the SEC from 1994-2007. Positive words which were found to be frequently negated were eliminated from the dictionary. In the Loughran-McDonald dictionary, only 342 words overlap with the original 2,000+ word Harvard-IV-4 Negative dictionary.¹⁸⁴

I chose the Loughran-McDonald dictionary for this analysis because in concordance tests, it proved to be considerably more reliable than its closest competitor, the Regressive Imagery Dictionary (RID). The RID is a dictionary of 3,000 words created by Colin

Martindale, a psychologist from the University of Maine, primarily to measure primordial vs. conceptual thought. The RID’s 29 categories include Positive-affect, Affection, Glory, and Ascent as well as Aggression, Anxiety, Descent, and Sadness, which I grouped into Positive and Negative meta-categories. A distinct advantage of the RID was that a peer-reviewed French translation of the dictionary was available. While there is no prior research on the reliability of the RID to code financial texts, my own test on a sub-sample of the *New York Times* data showed that it was passably effective, but not as reliable as the Loughran-McDonald dictionary.

In order to compare the reliability of the RID to the Loughran-McDonald word lists, I content analyzed all the articles appearing on Mondays in January 2007 in the *New York Times* Business section twice, once using the Positive and Negative categories in the Loughran-McDonald dictionary, and then again using the selected polar RID categories. I then coded each pattern in its original context using the concordance function, assigning a 0 to misclassified entries and a 1 to correctly classified entries, calculating the percent of the time that a pattern’s context matched its category. I found that the RID dictionary classified Negative patterns correctly a respectable 61% of the time, but classified Positive patterns correctly only 36% of the time. On the other hand, while the Loughran-McDonald dictionary classified Negative patterns correctly only 70% of the time, Positive patterns were classified correctly 78% of the time. A reliability score above 70% is typically

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thought to be acceptable by current industry standards. It should be noted that this test was conducted on a small sub-set of data with only one coder, and there is no measure of intercoder reliability.

After having chosen a basic dictionary, I augmented the Loughran-McDonald dictionary with supplemental Positive and Negative categories (with 61 and 47 patterns, respectively) as well three categories designed to measure Scandal words (52 patterns) and words associated with Short-Term (44) and Long-Term (17) Investment strategies. The final dictionary was translated directly into French using Google Translate, except in the case of the highly-technical Short-Term Investment Strategy category, in which a professional trader translated the English patterns.

The Long-Term Investment category contains words typically associated with a value-based investing approach—or one that determines price based on a stock’s fundamentals and is associated with long-term investing. I developed this list based on the description of the Firm-Foundation Theory of Stock Prices in Burton Malkiel’s iconic value investing how-to book, A Random Walk Down Wall Street.

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189 Please see Appendix A for a full list of words used in each category.

The Short-Term Investment category, on the other hand, contains words associated with technical strategy, the antithesis to value investing, in which a stock’s value is measured not by its fundamentals, but by whether or not it can be sold at a higher price. This is described by some as the “greater fool theory” as in: I will buy this Pets.com stock at $1000 even though it is worth nothing because it’s 1999 and I believe there is a greater fool out there who will buy it from me at $2000. Technical strategy is by definition a short-term strategy, and is thought to be a much riskier way to invest, as it relies on charts to determine the direction of a stock’s price. It is widely criticized by equity analysts who advise long-term purchases based on value-investing principles, but is the method of choice for many traders and short-term investors looking to make a quick profit on market sentiment. I developed the list of words in the Short-Term Investment category based on key terms typically used by technical strategists.

The Scandal category was designed to measure the prevalence of stories about financial scandals. The category was developed by me based on anecdotal observation of words typically associated with financial and accounting scandals.

It is important to note that in contrast to the dictionary of polar words, the dictionaries of long-term investment terms, short-term investment terms, and scandal terms are not peer reviewed. Their development was somewhat haphazard, and indeed the categories were meant to be more exploratory, as they were originally not part of the core hypothesis of this dissertation. However, these long and short term and scandal categories did ultimately

\[190\] *Ibid.*
produce some interesting findings with implications for the core hypothesis. Results from the long and short term investment as well as the scandal category content analyses support the main finding from the polar word category analysis: that national-level differences in language use exist and are related to both political tendency (capitalist vs socialist) and growth in stock ownership. This is all the more reason to remember that they are based on major assumptions, including: that short-term investors would use the technical analysis framework, and that long-term investors would use the value investment framework.

For the scandal category results to be meaningful, one must assume that a greater prevalence of stories about scandal in France is not simply a product of greater prevalence of scandals in France. This seems unlikely, as all three countries rank very similarly on the World Bank’s measure of corruption control, between the 85th and 95th percentiles of 211 countries ranked, despite differences in use of scandal-related words. Hong Kong ranks highest in control of corruption, in the 94th percentile, while France ranks second-highest, in the 90th percentile. The U.S. ranks lowest in control of corruption of the three countries, in the 85th percentile, despite the fact that French publications use scandal-related words more frequently than those in the U.S.191

Since the Loughran-McDonald dictionary was created using 10-K reports rather than financial news, I ran a basic word count of all the articles appearing in the New York Times Business section in 2007, identifying the most common polar words to ensure that they were included in the final dictionary. The sample had to be large for this exercise because

one big story might otherwise have skewed the results. I chose 2007 because during that year the S&P 500 began very close to where it ended (ending the year 50 points higher than it began), despite significant volatility. While in 2005 the S&P only gained about 36 points, the somewhat steady increase during that year might have corresponded with a greater incidence of positive words. On the other hand, the volatility in 2007, such as the S&P 500’s 8% drop between July 13 and August 3, and the subsequent 7% gain between September 7 and October 12, may have corresponded with more balanced use of positive and negative language.

Although the concordance identified some words that were frequently misclassified by the original Loughran-McDonald dictionary, none was removed, in order that misclassification might at least be equitably distributed across publications. So although the 70% success rate for classification of Negative patterns might have been improved by eliminating patterns such as “late,” which was often misclassified as Negative when it appeared in the context of the newspaper’s “Late Edition,” this kind of modification would have altered the comparability of the English-language results with those of the French. And even though the original list was developed based on English-language 10-K reports, and supplemented with high-frequency polar words from an American newspaper, leaving the existing misclassifications in the English-language dictionary will at least be one factor mitigating the differences in misclassification between the French and English results.
Publications

In each market, I chose the most well-respected and widely-read national business and financial news daily, and added the business section of the most authoritative national general news daily to ensure measurement of news that reaches the broadest audience as well as financial news professionals. I measured the leading financial newspaper in its entirety, but only the business section of the mainstream paper in order to limit the number of false positives from non-financial articles included in the analysis. In the U.S., the publications chosen are the Wall Street Journal and the Business section of the New York Times; in Hong Kong The Standard and the Business section of the South China Morning Post; and in France Les Echos, and the Business sections of Le Figaro and Le Monde.

United States

The content analysis covers the Wall Street Journal and the Business section of the New York Times from 1985 to 2008. The Journal was chosen because of its high national circulation and reputation as the preeminent source for financial news among financial professionals in the U.S. The Times was chosen not only because of its broad national readership but also for its reputation as offering a more liberal perspective compared to the Journal. The goal was to reach the broadest possible audience for financial news with two publications. Casual investors may be more likely to read the New York Times business section while financial professionals and highly engaged investors are more likely to read the Journal.
The print circulation for the *Wall Street Journal* in the U.S. was 1,717,363 as of March 31, 2008.\(^{192}\) The paper is published six days a week: Monday through Friday, with a Weekend Edition on Saturday. Dow Jones publishes three national editions of the paper: the Eastern, Central, and Western editions. The edition available through Dow Jones’ Factiva database, and analyzed herein, is the Eastern, for which circulation is 789,566.\(^{193}\) Readers tend to be affluent. The average household income for subscribers is $253,100, according to a 2007 *Wall Street Journal* subscriber study.\(^{194}\)

As of September 2008, the *New York Times* total Monday-Friday print circulation for was 976,337.\(^{195}\) The paper is published seven days a week, with slightly higher circulation figures for the Sunday edition. The average household annual income for readers of the weekday edition was $129,126, well above the national average of $73,720 but still below the *Journal*’s average reader household income.\(^{196}\)

According to the *New York Times* website, the paper ranked first among national newspapers in individually-purchased print copies, suggesting that when non-regular newspaper readers pick up a paper because of an interesting event or article, it is more

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likely to be the *New York Times* than another paper.197 This demonstrates the popularity of the paper among a broad, national audience.

In Figure 15 the blue line represents the value of the S&P 500 from 1950 until April 2009. The second, thickening blue line at the bottom of the chart shows the volume of shares traded, indicating that since about 1995 the volume of shares has been rapidly increasing, signaling more shares changing hands. Possible sources of this volume increase include not only household investors, but also institutional investors and hedge funds that systematically use leverage to make larger trades. The arrows represent the years of publication covered by the content analysis, and the shaded areas on the chart indicate major historical events in the U.S. stock market during that time. The first shaded area represents the crash of 1987; the second, the boom and subsequent bust of the internet stock bubble from 1995-2003; and the third, the most recent economic crisis.

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Because the content analysis extends from 1985 to 2008, it captures the language used in leading U.S. financial news sources during each of these significant periods in the history of the American stock market.

France

The content analysis examines Les Echos, the most authoritative national economic daily in France, as well as Le Monde Economie, the weekly Business supplement to Le Monde, the leading left-leaning paper in France. The analysis also includes Le Figaro Economie, the famously salmon-colored Business section of Le Figaro, a leading right-leaning paper. Les Echos was chosen for its ability to reach finance professionals and the most engaged investors, while Le Figaro was chosen because its business-themed ‘salmon section’ is a well-known and highly-regarded source of financial news. Le Monde was chosen for its
ability to reach a broad national audience, and as a counter point to Le Figaro’s right-leaning tendencies.

Established as a monthly newsletter in 1908, Les Echos became a daily publication in 1928, and since 1954 the paper’s subtitle has been “Le quotidien de l’économie,” which translates to “the daily newspaper of the economy”. Les Echos is published seven days a week, and as of 2008, had a total paid circulation of 121,026. In 2008, Les Echos reached 58.9% of French financial market professionals (15,569 readers, or the most of any French newspaper), and 9.6% of individual investors in France (194,000 readers), according to a study conducted by IPSOS, an independent market-research company. The number of individual investors reached by Les Echos exceeds total paid circulation because the IPSOS’ estimates are of readership, which factors in “pass-along”.

Le Monde was established in 1944, and in 2009 boasted a paid circulation of 300,522, and an estimated audience of 1,883,000 readers. In 2007-2008, Le Monde had the fourth-highest paid circulation of newspapers in France, behind Le Parisien Aujourd’hui, L’Equipe, and Le Figaro, in that order. An estimated 166,000 of Le Monde’s total audience are in the top 2% of income in France, which means they have an annual income

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greater than €90,000. This is higher than the 90,000 audience members within the top 2% of wage earners for Les Echos and 145,000 audience members within that 2% for Le Figaro.204

Le Monde is published six days a week: Monday through Saturday. The paper has a daily economic section well as a more comprehensive weekly Business-themed supplement, Le Monde Economie, published on Tuesday each week. On the first Saturday of each month, Le Monde also publishes an investment-themed supplement to the paper, Le Monde Argent, which includes sections on luxury pursuits such as the art market, wine, food, and antiques. This analysis focuses on Le Monde Economie supplement rather than Le Monde Argent because the latter was not consistently available from electronic data sources, and the sections on luxury collectibles could produce skewed results.

Le Figaro is a daily newspaper made up of three sections: Le Figaro Actualités (news), Le Figaro Economie (economy), and Le Figaro et Vous (culture/lifestyle). The paper is published six days per week and features an additional weekly literary supplement. Le Figaro Economie, which is analyzed herein, is known for its pink color and right-leaning outlook. In 2007-2008, total paid circulation was 322,475 with an estimated 1,285,000 readers.205


Le Figaro and Le Monde have very similar readership profiles and physical formats, with the main difference being that they are known for different political outlooks. Le Figaro has a slightly higher circulation, and Le Monde boasts a marginally more affluent audience. Les Echos’ has the lowest circulation of the three dailies that are examined herein, but as “le quotiedien de l’ economie,” it is most widely read by finance professionals. Taken together, the three newspapers should fairly reasonably represent the landscape of financial news in France.

Figure 16: France CAC 40 Index 1990-March 2009

The large shaded area in Figure 16 represents the internet or dot-com run-up beginning around 1997, the peak in 2000, and the steep decline from 2001-2003. The smaller shaded area to the right represents the current economic crisis, in which the France CAC 40 lost 42% of its value in 2008. Figure 16 shows that the content analysis includes Le Monde Economie and Les Echos from 1993-2008, and Le Figaro’s Economie section from 2003-2008. Consequently, the content analysis includes coverage by Les Echos and Le Monde’s
Economie section of both the internet bubble and the current economic crisis. *Le Figaro Economie*, the “salmon section” of *Le Figaro*, is only available since 2003.

**Hong Kong**

In Hong Kong, the analysis includes the *Standard* and the Business section of the *South China Morning Post*. These publications are the most widely-read English-language papers in Hong Kong. The most widely read newspapers overall are the Chinese-language tabloid newspapers, the *Oriental Daily News* (circ: 530,000)\(^{206}\) and the *Apple Daily* (circ: 310,150), but *Standard* and the *Post* were chosen for two reasons. The first was practical: as I do not read Cantonese, which would make for finding an acceptable Cantonese-language dictionary of words difficult. The English-language periodicals cannot of course be representative of all Hong Kong publications, however I concluded that what was lost in representativeness would be more than gained in better comparability of Hong Kong results to those of US papers. Second, the highest circulated Chinese-language dailies are tabloid publications, and thus not considered reliable sources of serious news among readers.\(^{207}\)

Although the English-language *South China Morning Post* and the *Standard* have slightly lower circulations than *Apple Daily* and *Oriental Daily*, they are still in the top five most-circulated publications in Hong Kong with circulations of roughly 100,000 and 225,000, respectively, and are viewed as among the most trustworthy publications in Hong Kong.


According to a survey of newspaper credibility by the Chinese University of Hong Kong’s Center for Communication Research, since 1997 Hong Kong readers have consistently ranked the *Post* as the most trusted newspaper in Hong Kong, scoring 6.85 of a possible 10 in 2010. Despite the significantly more tabloid reputation of the free *Standard*, it still scored a respectable 6.50, and in the top 6 of the 17 publications in the survey. The more popular *Oriental Daily News* and *Apple Daily* scored 9th and 15th out of the 17 publications, as they tend to be dominated by celebrity gossip and entertainment news of questionable veracity, and might be best described as the Hong Kong equivalent of the *New York Post* in the United States.208

The *Post* and the *Standard* complement one another well and together reach a diverse English-speaking audience. The *Post* is a highly-regarded, serious daily newspaper in a market saturated with tabloid or sensationalist-style news, while the *Standard* is a free newspaper that tends more toward the tabloid style and consequently reaches a broader audience. While in other markets I have avoided including less reputable new sources, the tabloid style is so pervasiveness among Hong Kong publications that a study of Hong Kong newspapers which overlooked them entirely would risk irrelevancy.

The number of local newspapers in Hong Kong has remained relatively constant over the past 30 years, while the choices available to consumers of other forms of media have grown exponentially. Since the mid-1980’s the number of local newspapers in Hong Kong has declined, while remaining in the range of about 40-60. In 2007, the number of

newspapers had shrunk to 44. In contrast, the number of periodicals grew from 400 in 1980 to 689 in 2007. And since the television market was liberalized in 1993, the number of pay-TV options grew from 8 to 273 in 2007. 209 The market for newspapers has therefore been becoming less, rather than more crowded on both a relative and absolute basis, although the other forms of media as well as the internet vie for the same limited attention of the population.

First published in 1903, the Post has an affluent audience made up of both Chinese and non-Chinese readers, as well as a high circulation for a non-tabloid in Hong Kong. The Post’s circulation in June 2008 was 107,080 according to an Audit Bureau of Circulations report.210 A separate study conducted by Nielsen in 2007 found the combined readership to be 358,000 for the South China Morning Post and the Sunday Morning Post, which would make the Post the most popular English-language daily in Hong Kong. The Nielsen study also reported that 43% of readers had a monthly household income above HK$70,000, or roughly $9,000 USD.211 Despite the fact that the paper is published in English, 49% of the South China Morning Post’s readers are of Chinese descent, 13% are non-Chinese Asian, and 37% are Caucasian.212 The Post’s primary Chinese-language competitor, the Ming Pao Daily News, which is typically thought to be as a trusted source of serious news, had a


The Post is published Monday-Saturday, with a separate Sunday edition, the Sunday Morning Post, which does not include a Business section. The Post appears to be a popular source of financial news: the Post’s website, scmp.com, reports that its Business page is the second most highly visited, after the homepage, commanding 13\% of all page views at the site.\footnote{Display Advertising Department, “Making an Impact,” (accessed 4/25/09).}

The Standard is an English-language business news daily produced and distributed in Hong Kong and greater China with a daily circulation of 224,128, and an estimated readership of 479,000.\footnote{The Standard (Hong Kong), “About Us,” The Standard Newspapers Publishing, Ltd. http://www.theStandard.com.hk/aboutus.asp (accessed 4/25/09).} Compared with the Post or the Hong Kong Economic Times, the most popular Chinese-language financial newspaper in Hong Kong with an estimated daily circulation of 85,512 in December 2008,\footnote{Audit Bureau of Circulations, “Hong Kong Economic Times,” http://www.hkabc.com.hk/en/index.htm (accessed 6/30/09).} the Standard uses a less serious, tabloid style and has a much higher circulation. According to the paper’s website, the Standard is directed at businesspeople and young professionals. A February 2008 readership study conducted by an outside firm found that just under half of the 479,000 estimated readers were considered “affluent” and 94,000, or about 20\%, were “investment-savvy”\footnote{The Standard (Hong Kong), “About Us.”}.\footnote{The Standard (Hong Kong), “About Us.”}
Established in 1949 as the *Hong Kong Tiger Standard* by Aw Boon Haw to challenge the pro-colonialist newspapers of the day with an independent voice that would represent the Hong Kong Chinese, the *Standard* has been through many transformations over the past 60 years, but has always maintained its allegiance to editorial autonomy.\(^{218}\) During the dot-com boom, the name of the paper was changed to the *Hong Kong iMail* (later changed back to the *Standard* in 2001), and since September 2007 it has been offered for free. The paper is published five days per week: Monday through Friday, and distributed in Hong Kong at 247 street points, as well as in corporations, residential locations, government offices, schools, hospitals, hotels, malls, gas stations, and on airlines.\(^{219}\)

Although the *Standard* includes local and international political news, as well as sections devoted to sports and tabloid-esque celebrity news, its primary focus is still business news. The tradeoff for what I lose in the reliability of the content analysis by coding non-financial news stories is gained in the generalizability of the Hong Kong portion of the study. Since tabloids command a more diverse readership, this makes the *Standard* more representative of the typical news-reading experience in Hong Kong. It is a telling fact about the pervasiveness of capitalism in Hong Kong culture, that business and tabloid news can so easily coexist.


\(^{219}\) *The Standard* (Hong Kong), “About Us.”
From January 1993 to January 1994 (the first shaded area in Figure 17), the Hong Kong Hang Seng Index gained 101%. According to Robert Shiller, this was the 21st largest one-year real stock price index increase in history.\textsuperscript{220} The second/middle shaded area in Figure 17 corresponds to the Asian Financial crisis of 1997-8. In July 1997, around the time that the British government handed over sovereignty of Hong Kong to the People’s Republic of China, the Thai baht collapsed, triggering a crisis across several Asian countries. The third shaded area corresponds to the current crisis, in which the Hang Seng Index lost 48% of its value in 2008.

Beginning in 1992, LexisNexis provides full-text coverage of the \textit{South China Morning Post}, with the ability to limit a search to articles from the Business & Finance section. Full-text coverage of the \textit{Standard} is available from 2002 to the present from LexisNexis, and

from 2001 to the present from Factiva. The content analysis covers the Business & Finance Section of the South China Morning Post from 1993-October 2008 in order to include all three shaded areas, and the Standard from 2003-October 2008, which captures the most recent stock market bubble.

The reader may wonder why the analysis begins in 1985 in the case of the New York Times and the Wall Street Journal, in 1993 in the case of the South China Morning Post, Le Monde and Les Echos, and in 2003 in the case of Le Figaro Economie and the Standard. Start dates were chosen based availability of data, and the graphic representations above demonstrate how the start date for each publication corresponds to the relevant stock market index level at the time.

In a few cases, there are months in which the electronic database search produced no, or very few results. This occurred relatively infrequently, and in the case of months where data was missing entirely, those months were removed from the analysis. In order to ensure that those months in which the electronic databases offered only very few articles did not skew the results, an initial scatterplot plotting the proportion of negative words each month to the level of the relevant market index at the end of that month revealed any outliers (see Figure 18 for an example below). Any outliers were removed from the analysis.

Before analyzing data, simple scatterplots are helpful to visualize relationships between variables and to identify any potential outlying data points. The below scatterplot (Figure
18) is a simple visual representation of how a regression analysis can measure the effect of the proportion of negative words appearing in a given publication on a market index: each dot represents one month, for which the location on the x-axis is determined by the proportion of negative words in *Le Monde* in that month, and the location on the y-axis is determined by the level of the CAC 40 Index for that month. A scatterplot alone can look like an incomprehensible cloud of dots, but a simple *trendline* reveals the direction and the degree of the relationship, if any. This trendline, also known as an ordinary least squares (OLS) regression line, represents the line best ‘fitted’ to the dots, or that is simultaneously closest to each one of the dots. The slope of the regression line tells us the average amount by which the proportion of negative words increases (or decreases, in this case) for each one unit increase in the CAC 40 Index.

Figure 18: Influence of outliers: Monthly proportion of negative words in *Le Monde* business section vs. CAC 40 Index with outliers.

\[ y = -38831x + 4872.2 \]
As we can see, a few outliers can strongly influence the angle of the regression line, much as a few high or low data points can influence an average of those points. The above scatterplot, which plots monthly returns of the CAC 40 Index versus the proportion of negative words appearing that month in *Le Monde’s* Business section, shows three clear outliers, circled in Figure 18. Closer inspection reveals that those outliers correspond to months where searches of the electronic databases for whatever reason produced very few articles. These data points are therefore not a good representation of the proportion of negative words actually appearing in *Le Monde* in that month. The dot farthest to the left corresponds to November 1995, a month in which the database only provided 27 articles, for a total of 3,048 words, well below *Le Monde*’s Business section average of over 75,000 words per month. If we remove this point, as well as the points associated with those months with suspiciously low word counts, we get the following scatterplot, seen in Figure 19.
Clearly, the outliers had a strong effect on the regression, as we can see a much steeper slope in Figure 19 than in Figure 18. In the regression with outliers, the slope is -38,831, but when we remove the outliers, the slope decreases four-fold to -176,923. The steep negative slope of the regression line shows that the number of negative words in the business section of *Le Monde* decreases as the absolute level of the CAC 40 increases.

Sample Design

Most off-the-shelf content analysis software cannot easily process 3 million articles, which is my estimate of the full population of articles selected for this study. I therefore took a systematic sample of all the articles appearing in each publication for one day each week,
and grouped articles together by month. I chose the Monday paper because it was the most likely to provide a summary of the prior week’s news, and because it was less likely than the Saturday or Sunday editions to contain off-topic supplemental material (real estate, arts & entertainment sections, etc.).

In the case of *Le Monde Economie*, which is published only on Tuesdays, I used Tuesday rather than Monday because it was more reliably available from electronic data sources and would likely provide more substantial coverage of Business topics than the ordinary daily Business section.

The next chapter presents test results of which publications use more positive or negative words, investment words, and scandal words overall by looking at the average proportion that each word category has made up of total words for each publication over the full period of analysis. After that, results are presented from a regression analysis that determines which word categories, if any, predict household investment in each place. Next, correlations between categories and market indices are presented to determine whether categories fluctuate with the stock market, and whether scandal words are more commonly used in bear markets by American publications. Finally, time-series data shows how use of the words in each category has changed over time in each publication.
Chapter 5

RESULTS

Results are based on a content analysis of almost 140 million words spanning seven financial publications in three countries from 1985-2008. The findings presented in the following pages disprove some of my original hypotheses and assumptions, dispelling the myth that optimism is a distinctly American cultural tendency, and offer insight into how political-economic ideology influences the use of language.

The results show that language is firmly anchored by national culture with a particular political-economic ideology, but also fluctuates with moves in the stock market. If we plot each country on a political-economic ideological continuum, with socialism on the left and free market capitalism on the right, Hong Kong would land the furthest right of the three, while France would be the left-most country, and the U.S. would fall somewhere in between. The results show that this national political-economic culture explains differences in publication language use within the three countries. Hong Kong publications tended to use the most positive and investment-related words, but the fewest negative and scandal words. Conversely, French publications used the highest proportion of scandal and negative words, and the lowest proportion of positive and investment-related words. In terms of word use, as with economic/political ideology, the U.S. falls somewhere in between.
When comparing the three countries, the tendency to use the most pro-business language is associated with higher growth in the percentage of households who invest in stocks. The U.S. is the clear global leader in the percent of households invested in stocks, but if we look at growth in households owning stocks, Hong Kong is the leader, France the laggard and the U.S. falls somewhere in between.

It would seem from the following results that the national political-economic ideological culture—as measured here by the basic tendency of a country’s publications to use optimistic language when reporting financial news—is one factor driving higher rates of growth in households that invest in the stock market. When examining each country individually, use of pro-business language fluctuates, often along with the overall level of the stock market, but these fluctuations in language do not encourage or discourage households to invest in stocks. It is the basic tendency of a publication from a given country to use the language associated with a national political-economic ideological profile, which withstands these minor fluctuations, that corresponds to the higher rate of growth in household investment.

National-level differences in language use

Content analysis from 1993-2008 for each publication measures the proportion that each category of words contributes to total words during this time frame, and shows that
publications of the same origin country show very consistent patterns of language use. I expected to find that American financial news would contain the highest proportion of positive words and the lowest proportion of negative words, as well as a higher percentage of long-term investment words. Conversely, I expected to find French publications would demonstrate the opposite trend with regard to positive and negative words. Finally, I expected to find that optimism in Hong Kong publications would fall somewhere in between the U.S. and France, but that the use of short-term investment words would be more common than the use of long-term investment words.

Instead, what I found was that Hong Kong publications are most optimistic, while French publications are the most pessimistic and the U.S. falls somewhere in between. U.S. results are closer to those of Hong Kong than they are to those of France. U.S. publications do not use a higher proportion of long-term words; in fact, all publications use about the same number of long-term investing words, except for the South China Morning Post, which uses slightly more. Short-term investment words are used with about the same frequency in U.S. and Hong Kong publications, with French publications using slightly fewer short-term investment words. Overall, when the long-term and short-term investment word categories are combined, Hong Kong uses the most investment-related words, and France uses the fewest. Scandal words are most heavily used in France, followed by the U.S. These results diverge from my expectations, but in logical, consistent ways. In Hong Kong, where household investment is growing the fastest, publications are most optimistic, and talk the most about investment, and the least about scandal. In France, where
household investment has been stagnant, publications are most pessimistic, use the fewest investment-related words, and the most scandal-related words.

**Unweighted Proportions**

Figure 20 shows the unweighted proportion that each category makes up of total words appearing in each publication from 1993-2008. The bottom four rows of the table show national results, which are the sum of the results of constituent publications. For example, 1.6% of all words appearing in the *New York Times* sample from 1993-2008 were classified as ‘Positive’ in the dictionary. This is lower than the U.S. national average for Positive words of 1.8% (which includes the *Wall Street Journal*), but equal to the group average (which includes all U.S., French, and Hong Kong publications).

Group and national averages are weighted by the total number of words analyzed in each publication. For example, since the *Wall Street Journal* sample contained about 45 million words compared to the *New York Times* sample of 17 million words, it has a proportionately stronger influence on the U.S. average. As a result individual publications with smaller samples do not skew national-level results.

While I weight all results at the publication level as described immediately above, I refer to the results in Figure 20 as *unweighted* because they are dependent on the number of words in each category. For example, words in the negative category appear more often than those in the positive category in almost every case because the negative category contains

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221 It should be noted that this weighting process did not have a large effect on any of the national averages when compared with simple unweighted averages.
1,687 words, while the positive category contains only 325. The Long-Term investment word category would seem to represent a small proportion of total words (0.1% for most publications), but contains only 17 words. Figure 20 therefore is extremely useful in comparing results across publications, but within categories. In order to compare how prevalent one category is compared to another (e.g., Long-Term vs. Short-Term words), we will in turn look at the weighted results in Figure 22.

Figure 20: Unweighted proportion each category contributes to total words by publication, 1993-2008

<table>
<thead>
<tr>
<th></th>
<th>Total Dictionary 1687 patterns</th>
<th>Positive 325 patterns</th>
<th>Negative 1249 patterns</th>
<th>Long-Term 17 patterns</th>
<th>Short-Term 44 patterns</th>
<th>Scandal 52 patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYTimes</td>
<td>3.7%</td>
<td>1.6%</td>
<td>1.8%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>WSJ</td>
<td>4.6%</td>
<td>1.9%</td>
<td>2.3%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Le Monde</td>
<td>4.6%</td>
<td>1.4%</td>
<td>2.8%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Le Figaro**</td>
<td>3.9%</td>
<td>1.2%</td>
<td>2.3%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Les Echos</td>
<td>4.1%</td>
<td>1.3%</td>
<td>2.4%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Standard**</td>
<td>4.5%</td>
<td>1.9%</td>
<td>2.1%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>S. China M.P.</td>
<td>4.4%</td>
<td>2.1%</td>
<td>1.7%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Group avg.</td>
<td>4.3%</td>
<td>1.6%</td>
<td>2.3%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>US average</td>
<td>4.4%</td>
<td>1.8%</td>
<td>2.2%</td>
<td>0.1%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>France avg.</td>
<td>4.2%</td>
<td>1.3%</td>
<td>2.5%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.2%</td>
</tr>
<tr>
<td>HK average</td>
<td>4.4%</td>
<td>2.0%</td>
<td>1.9%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

**Data from 2003-2008 only

The differences between publications’ use of category proportions may at first seem very small, but one indication that they are significant is that discernable patterns persist at both the national and publication level. First, the intra-national publications tended to behave more like one another than like the papers of foreign nations, which implies that the

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222 U.S. newspapers, however, were the most unruly, with the sum of the difference in proportion results between the two newspapers across the five categories at 1.0%. The proportion results in French and Hong Kong newspapers were more likely to move in tandem, with the sum of the differences across the five categories between the publication with the highest and lowest proportion result is 0.07% for each. I attribute this to the unusual and somewhat inexplicable results of the New York Times.
differences in category proportions at the national level are meaningful and not due to chance. Second, although polar word use has changed over time for almost all publications, as Figure 21 below shows, the relative differences between publications’ use of each word category remained fairly constant over time.

Figure 21: Positive and negative words as a proportion of total words: a comparison of the Wall Street Journal, Le Monde, and the South China Morning Post.

As we can see in the left side of Figure 21, while polar words fluctuate over time, the South China Morning Post has consistently used the highest proportion of positive words from 1993 to 2008, while Le Monde has used the lowest. Conversely, Le Monde has consistently used the most negative words during this time period, while the South China Morning Post has used the fewest. The differences between publications’ uses of word categories may appear slight, but they are real, persistent, and both publication- and country-specific.

Figure 21 also shows that the proportions of words in the negative category for each publication appear to move more or less in lock step. We will see later that this is because positive word use tends to rise and fall with global equity markets (and the reverse is true...
for negative words), and global markets tend to rise and fall together. But the key here is that while word use moves with markets for all publications, each publication all the while retains its own country’s culture of optimism (or lack thereof).

Polar Categories (Positive and Negative)

The unweighted proportion results in Figure 20 show that Hong Kong publications use the most positive language, followed by the U.S., and France uses the lease positive language. The *South China Morning Post* has the highest proportion of words in the positive category at 2.1%, followed by the *Standard* and the *Wall Street Journal* with 1.9% each. Hong Kong publications as a whole are well above the group average of 1.6%, with 2.1% of total words falling in the positive category. French publications are considerably below the average, at 1.3%. The U.S. publication average at 1.8% exceeded the group average of 1.6%.

While making inferences from a few tenths of percentage points may seem like splitting hairs, there are two reasons why these differences are meaningful. First, as previously mentioned, the differences between countries in the overall levels of polar word use were not only consistently observed over various time periods, but also held constant at the national level. In other words, the polar word use of a left-leaning French publication looked more like a right-leaning French publication than a left-leaning American or Hong Kong publication. Second, although the overall levels of words falling into each category were small, the differences between countries are significant. If 1.3% of French words used could be classified as positive, that means the French business press is on average using only 60% as many positive words as their Hong Kong counterparts.
French newspapers behaved much as expected, with higher proportions of words in the negative category than their American or Hong Kong counterparts. However the New York Times has one of the lowest proportions of words in the negative category, with only 1.8%, well below the Wall Street Journal (2.3%) and below the group average of 2.3%. Only the South China Morning Post has a lower proportion at 1.7%. Hong Kong publications overall have the lowest proportion of negative words at 1.8%.

Long-Term Investment and Short-Term Investment Categories

Contrary to my expectations, U.S. publications were not the most frequent users of long-term investment words. U.S. publications used long term investment words more frequently than French publications, but less frequently than Hong Kong publications, which use the most investment words overall. The only publication with a proportion result above 0.1% in this category is the South China Morning Post at 0.2%, however the Long-Term Investment category is so small, with only 17 words, that the weighted averages, presented next, will tell us more. The Short-Term Investment category is also very small, so the unweighted results are less enlightening than their weighted counterparts. Nonetheless, a consistent relationship is visible: both Hong Kong publications as well as the Wall Street Journal use more short-term investment words than the other publications in the study. And short-term investment terms are very infrequently used in all French financial publications. Since the Short-Term Investment category was designed to capture terms related to daily, weekly, and perhaps monthly fluctuations in markets and the
analysis thereof, it is logical that the New York Times, which reports business rather than financial market news, would not use as many words in the category. Yet even so the Times exceeds all three French publications in its use of words in the Short-Term Investment category (0.12% vs. 0.09%), suggesting national-level differences in this category. It is unlikely that the dearth of short-term investment terms in French publications is a translation problem because this category was carefully translated by a third-party bi-lingual investment professional because of its technical nature.

More interestingly, the results show that the most optimistic publications also tended to use the most investment terms if one combines both the long and short term categories. Hong Kong used the most investing words overall at 0.4%, with the US second at 0.3%, and France trailing behind at 0.2%. This could suggest that an “investing” news article is more likely to have an optimistic bias. This would seem like a reasonable assumption to make, given that it is much more common for both retail and institutional investors to look for investments that represent buying opportunities than to look for investments that can be sold or shorted.

Scandal Category

Finally, although the Scandal category was designed to measure the co-incidence of scandal-related words and severe drops in market indices primarily in the United States, the publication-specific content analysis produced unexpected results. First, all three French publications use scandal-related words more often than Hong Kong publications, and do so
more consistently than those in the U.S. sample. Second, the *Wall Street Journal* tends to use words in the Scandal category more often than the *New York Times*. The latter is particularly surprising because as the *Journal* is typically thought to be the more pro-business of the two publications, one would expect that it would not dwell on business-related scandals, but the opposite appears to be true.

What the Total Dictionary results tell us:

The proportion that the dictionary (all categories combined) represents of total words in each publication’s sample demonstrates that the words in the dictionary are fairly consistently represented across intra and international publications. This is vital because there is a danger that a dictionary originally developed using words from American 10-K reports would not be as effective in a content analysis of Hong Kong or French publications, and the majority of English to French translation was done by a computer rather than a human translator. Some variation among publications is to be expected – after all, this dissertation is about different cultures using language differently, and it would be antithetical to assume that each country uses the exact same words. However, the total dictionary results show that the proportion of the dictionary that was found in U.S. publications is not significantly higher than Hong Kong or even French publications, and is in fact lower in the case of the *New York Times*.

Somewhat unexpectedly, the *New York Times* Business section has the lowest proportion of dictionary words of any publication: 3.7% vs. an average for the group of 4.3%. The newspaper has a robust average sample size of just under 100,000 words per month, and
content analysis results were double-checked for accuracy. A possible explanation for the across-the-board weakness in *New York Times* results is that the pre-eminence of the *Wall Street Journal* as required reading for financial industry professionals drives the *Times’* Business section to focus on more approachable business news for non-financial professionals. This might result in less market-related news and more story-driven articles unlikely to contain financial terms typically found in 10-K reports and repeated in the *Wall Street Journal*.

**Weighted Proportions**

Weighting the results by the number of words in each category makes it possible to compare proportions across categories, for example indicating whether positive or negative words are used most frequently by a given publication. Figure 22 shows the proportion that each category makes up of total words appearing in each publication from 1993-2008, weighted by the number of words in that category. Figure 22 also includes national and group averages, weighted similarly to those in Figure 20 by the total word count of each publication’s sample.
Polar Categories (Positive and Negative Words)

The weighted results in Figure 22 show first that every single publication examined in this analysis used more positive than negative words in reporting business news. Although this content analysis did not include non-business news articles, and therefore the results cannot be generalized to other types of news, the findings herein seem to support past research findings that humans tend to be fundamentally optimistic. That said, U.S. and Hong Kong publications consistently use more positive words than French publications, with the South China Morning Post using by far the most positive and the fewest negative words of the seven publications in the analysis.

**Data from 2003-2008 only**

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The weighted results confirm those of their unweighted counterparts, showing Hong Kong publications to use the most positive words, with the *South China Morning Post* leading the charge. The weighted results add to this, showing that of all publications, Hong Kong papers use the highest ratio of positive to negative words, and French papers use the lowest. And observed relationships hold up at the national level. All three French publications showed an identical ratio of Positive: Negative words found at 0.004%: 0.002%. And while there is fluctuation among U.S. and Hong Kong publications’ Positive: Negative ratios, three out of four exhibited an identical difference of 0.004% between the proportions of positive and negative patterns. The *South China Morning Post* was the exception, with a ratio of 0.007%: 0.001%, or a 0.006% difference.

Most publications use about the same proportion of words in the Negative category, but there are more pronounced national-level differences between publications in use of Positive category words. The weighted proportion of Negative words is between 0.001% for the *Post* and 0.002% for all other publications, but the Positive category results range from 0.004% for the French publications to 0.007% for the *Post*. But any way you slice it—whether we are looking at the positive or negative category, in their weighted or unweighted form—results consistently show that Hong Kong publications use the most optimistic language, and French publications use the most pessimistic language.

It is worth repeating that although past researchers have found content analyses of financial text using lists of positive words to be unreliable because of negation (e.g. “cannot” win),
my tests of the dictionary found that the Yoshikoder software program correctly classified words from the Positive word list 78% of the time; an even more accurate result than that of the Negative list, which was correctly classified 70% of the time. This accuracy can be attributed to the care taken by Loughran and McDonald to avoid misclassification by carefully honing the Positive word list.

Long-Term vs. Short-Term

The weighted results from Figure 22 show the relationship between the use of Long-Term and Short-Term Investment categories by publication. I expected to find that U.S. publications would use more Long-Term Investment words than either France or Hong Kong, and that Hong Kong publications would employ the most Short-Term Investment words. It does appear that the Hong Kong publications in this sample use the highest percentage of Short-Term Investment words, but this is because they use the most investment terms—both Long and Short Term—overall.

The weighted results show first, that Long-Term Investment words are used with greater frequency than their Short-Term counterparts by all publications, and second, that Hong Kong is the leader in use of both investment word categories. U.S. publications use Long-Term Investment words with about the same frequency as French publications (0.006%),


but less often than Hong Kong publications (0.010%). The South China Morning Post raised the Hong Kong national average with 0.011% of words matching those in the Long-Term Investment category. Hong Kong publications also used the highest proportion of Short-Term Investment words, followed by the U.S., and finally France uses the fewest. Short–Term Investment patterns made up 0.002% of all three French publications’ content, 0.004% of total U.S. content and 0.005% of the Hong Kong sample’s total content.

While my expectation was that more active trading behavior among Hong Kong investors when compared with their U.S. counterparts would correspond with greater use of short-term investment words, and that the long-term investment strategies popular in the United States would correspond with greater use of long-term investment words, these results reveal the fundamental error of this hypothesis. While long-term, value investment and short-term, technical analysis/chart-based investment strategies are theoretically delimited as contrasting and competing ideologies, in practice one is seldom used in isolation; rather they must be combined for a full picture of any investment. Looking only at technical analysis, or market-based trends with no attention to fundamental value may be profitable for hedge funds that can execute huge, highly-leveraged block trades and take advantage of miniscule price arbitrage opportunities that last for a few days or even a few seconds. But for the average household with only a few tens of thousands of dollars to invest, given the transaction costs of making small trades and the information costs necessary to monitor market developments full-time, a dominantly technical analysis or market context-based approach is not viable. At the opposite end of the spectrum, a value-based investing approach, where the appropriate price is determined solely by a stock’s fundamental value,
is also not viable for the average investor, because as John Maynard Keynes is credited with having once said, “the market can stay irrational longer than [he] can stay solvent.” Therefore, a compromise between the two poles is necessary for most investors. For this reason, in cultures where trading is the most prevalent (Hong Kong) and where investment is becoming more prevalent, both long and short term investment words are used most often.

These results also show that long-term or value-based investment ideology remains the dominant ideology, and that a high incidence of trading does not correspond to greater use or discussion of Technical Analysis strategies. It would seem that discussion in financial publications of investment tends to be in terms associated with long-term investing, regardless of how frequently readers tend to trade stocks, as Technical Analysis remains a more esoteric strategy more likely employed by financial professionals.

Conclusions from weighted and unweighted proportion results:
First, the proportion results show that the optimism bias that my hypothesis accuses the U.S. of harboring is in fact a better reflection of Hong Kong’s culture. In terms of polarity, the U.S. news sources behaved as expected relative to French publications, but the results showed that Hong Kong newspapers were the most optimistic and least pessimistic of the sample.

Second, contrary to my expectations, U.S. publications do not use words in the Long-Term Investment category more often than French or Hong Kong publications, and Hong Kong
publications do not use the most Short-Term words. Hong Kong newspapers use by far the most investment-related words, both Long and Short Term, and the weighted results brought to light that all publications use more words from the Long than the Short Term Investment.

Third, the Scandal category produced some interesting and unexpected results: French newspapers appear to discuss scandals more often than the U.S., while Hong Kong publications discuss scandal the least.

Fourth, the left-right continuum bias in a publication’s use of polar language is observed at the inter-national level (between countries), but not the intra-national level (between publications, within countries). The ratio of Positive to Negative words is virtually identical in Le Monde, the typically left-leaning general news daily in France, and Le Figaro, its right-leaning counterpart. Among U.S. publications, the New York Times uses fewer negative and scandal-related words than the Wall Street Journal, despite its reputation for leftward allegiances.

The data examined thus far begins to paint a picture of how a country’s political-economic culture is a consistent predictor of language used in the business press. Hong Kong, known as the penultimate free-market economy, demonstrates a strong culture of capitalism to boot. The language used by Hong Kong financial publications is more positive, more investment-oriented, less negative, and less scandal-oriented. Each of these would seem to promote investment in business via the capital markets, which is typically the easiest way
for individuals with limited capital to invest in business. Conversely, the more negative, more scandal-oriented, and less investment-oriented language used by the French financial press would seem to undermine investors’ faith in business in general, reflecting the country’s more socialist economic model and discouraging investment in business via capital markets.

But are the observed differences in language really a reflection of economic-political cultural differences? Or is the greater use of positive and investing words merely a reaction to higher market returns in Hong Kong? When we compare the performance of each index from 1993-2008, the Hang Seng Index outperforms the S&P 500, which itself outperforms the CAC 40. Figure 23 shows that $1 invested in the Hang Seng in 1993 would have returned $2.62 at the end of 2008, while the same dollar would have returned $2.12 if invested in the S&P 500, or $1.89 in the CAC 40 Index. However, since we are looking at language over time, it is important to note that of 192 months from 1993-2008, the Hang Seng Index had fewer positive months (111) than the CAC 40 (113) or the S&P 500 (119), and more negative months (81) than the CAC 40 (78) and the S&P 500 (73). This means that the Hang Seng’s gains occurred in big jumps over short periods of time. In fact, Figure 23 shows that the Hang Seng’s outperformance is largely due to the period from June 2006 to October 2007. If we isolate the period from 1993-2005, removing 2006-2008, the U.S. market outperforms. $1 invested in the S&P 500 Index would have returned $2.70, and only $2.40 had it been invested in the Hang Seng, and $2.20 in the CAC 40 Index. If we look at the proportion of total words in each publication from each category during this abbreviated period of time from 1993-2005, they are identical to the proportions for the full
period of time from covering 1993-2008. This would imply that the use of language in publications is not driven solely by markets.

Figure 23: Monthly gain of $1 invested in each index from 1993-2008.

So do we observe a capitalist culture in Hong Kong—and to a lesser extent the U.S.—that drives more participants into the stock market, thus bidding up prices? Or do we have three countries’ newspapers reacting in proportion to the relative gains and losses of the local index? To a certain extent, this is an unanswerable chicken-and-egg problem, and surely the answer lies somewhere in between. In general, index returns and optimistic language increase together and are mutually reinforcing. U.S. and Hong Kong financial publications both used a higher proportion of optimistic words from 1993-2008, when the S&P 500 and the Hang Seng Indices enjoyed a higher return than the CAC 40. However, the results summarized in Figure 21 (proportion of positive and negative words each publication from

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225 The only exception was the Negative category in *Le Monde*, which increased from 2.8% to 2.9% of total words in the business section when we looked at the period from 1993-2005. The Negative category in *The Standard*, and both polar categories in *Le Figaro*, also exhibited slight (<0.1%) changes, but data is only available since 2003 for each of these publications, and the small sample is less reliable.
1993-2008) show that country-level tendencies in language use withstand market fluctuations.

There remains an unanswered question regarding the *New York Times* anemic content analysis results across the board. It is logical that the *Times* would lag the *Journal* in the Short and Long-Term Investment categories, since the *Times* would be more likely to report on business rather than financial market and investment-related news. Furthermore, I could accept the argument that the polar categories, developed based on 10-K financial reports, would more likely produce words found in the *Journal* than the *Times*. But this does not explain why the business sections of *Le Monde*, the *South China Morning Post*, and *Le Figaro* would not exhibit the same trend in lower overall usage of polar words. In fact, we might even expect a business section to use a greater proportion of financial terms because the sample is not diluted by political and other news stories in an exclusively financial publication. This certainly seems to be the case for the *South China Morning Post*’s results relative to the *Standard’s*. Unfortunately, the results of this content analysis do not offer much guidance in the way of this perplexing trend, as it may be a better question for a future project using human-coded content analysis.

These results disprove my two main hypotheses: that the higher rate of household investment in the United States could be explained, first, by a greater use of optimistic language, and second, by a greater use of long-term investment words by the media. The findings also disprove the secondary hypothesis, that a greater use of short-term investment words has lead to a more pervasive trading culture in Hong Kong.
We have determined that language, which is ultimately predicted by political-economic culture, predicts the rate of growth in household stock investment in one country compared to another. But regression analyses in the following section show that growth in the household stock investment within each country is not similarly linked to annual fluctuations in language use.

Predictors of Changes in Household Stock Investment – U.S. and Hong Kong

The regression results below show that annual fluctuations in the use of polar words do not encourage or discourage investment within any of the three countries. In Hong Kong, the advance of time predicts investment rates, while in the U.S., fluctuations in the S&P 500 were the best predictor of fluctuations in household stock investment. French regression results were inconclusive due to a lack of adequate data.

A regression can show how much the movement of one or more independent variables predicts the movement of another, dependent variable, and can specify the relative influence of each independent variable on its dependent counterpart, but that does not mean that the independent variables are causing the dependent variable to move. In the case of this analysis, we have a group of mutually-reinforcing variables, and we do not hope to arrive at an explanation of direct causation. Still, identifying what independent variables have predicted an increase in household stock investment rates in the past enables an
educated guess about what may increase or decrease in household stock investment going forward.

The following results are based on two sets of regression analyses—one for the U.S. and one for Hong Kong. Unfortunately, for France the lack of an adequate number of data points (only four) rendered it impossible to achieve a statistically significant or reliable regression model. After determining which independent variables showed statistically significant correlations with the dependent variable, I ran one OLS regression with each independent variable, looking for results which explain the most variation in the data (have the highest r squared) and which are statistically significant (have the lowest p-value). Then, I ran multiple regressions with exhaustive combinations of independent variables and present the regression with the highest r squared and lowest p-value.

Independent Variables
The independent variables include the proportion of words from each category in each country’s combined publication sample over the course of each year. For example, the U.S. Positive variable is the proportion of total words appearing in both the Wall Street Journal and the New York Times in a given year that match those in the Positive category. Additional independent variables include: 1) the year, 2) the average price of the local market index during that year,\textsuperscript{226} and 3) the percentage change in the local index from the year.

\textsuperscript{226} For the purposes of this analysis I in fact took the natural logarithm with base E of the average price of the local market index during the year. A logarithmic scale accounts for the fact that a 10% increase in the market index when it is at 100 should be counted in proportion with a 10% increase in the market index when it is at 1000, even though one is a 10 point increase and another is a 100 point increase.
previous year. These variables should determine how much the rise in markets or the passing of time explains the increase in participation.

Dependent Variables

The dependent variable for the U.S. is the percentage of total households which report that direct and/or indirect stock market holdings make up part of their total household assets. This includes holders of mutual funds and 401(k) plans with equity holdings and those who hold stock through employee stock option compensation schemes. However since in all cases data was collected via survey, there are no strict rules as to how people may have interpreted or misinterpreted the question of whether they own stocks.

Every three years, U.S. the Federal Reserve Board and the Department of the Treasury commission the Survey of Consumer Finances. Since 1992 data has been collected by the National Organization for Research at the University of Chicago (NORC), but the survey questionnaire has not changed materially since 1989, the first year stock holdings were measured. Roughly 4,500 families are randomly selected and interviewed in person and over the phone between May and December. Wealthy households are oversampled, although weights are used to ensure that the results are representative of the population.227 The survey measures the percent of households with directly held stocks in addition to the percent holding both directly and indirectly held stocks, but the latter is used for this analysis to maximize comparability between countries. The years included are 1989, 1992, 1995, 1998, 2001, 2004, and 2007.

The dependent variable for Hong Kong is slightly different from that of the U.S. It is the percentage of individuals, rather than households, who own stock. Because the Hong Kong Census and Statistics Department does not conduct surveys of household assets, data is instead collected from an annual survey conducted by the Hong Kong Stock Exchange. The survey uses a two-stage random sample of 2,005 individuals and is conducted by phone. “Stocks” are defined as shares, warrants, Exchange Traded Funds (ETFs), Real Estate Investment Trusts (REITs), callable bull/bear contracts (CBBCs), and options. A description of survey methodologies does not specify whether responses include MPF holdings, but it is reasonable to assume that survey respondents would consider their MPF holdings in their responses unless specifically asked not to do so.

Each year, Hong Kong Exchanges and Clearing Ltd. collects data from mid-November of the year in which the study is published to mid-January of the following year. In other words, survey data for 2007 is conducted in late 2007/early 2008. I therefore use content analysis and stock market data from 2007 for the regression in order to establish a time-order relationship that could help prove or disprove causation of investment growth within countries. The years included in the analysis are 1994, 1997, 1999-2005, and 2007.

The results of the regression analyses show that fluctuations in language use at the annual level do not have a strong impact on annual fluctuations in stock ownership. In the U.S., the best performing regression featured the market index as the sole independent variable.

---

In Hong Kong, a multiple regression with the independent variables Year, Long-Term, and Short-Term was the best predictor of stock market ownership, with Year being by far the most statistically significant variable. This suggests that year-to-year growth in household investment has been so strong in Hong Kong that it overpowers the impact of annual nuances in polar language use. Figure 24 and Figure 25 below show the regression outputs for the United States and Hong Kong.

Figure 24: Regression results for the U.S.

<table>
<thead>
<tr>
<th>Regression Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
</tr>
<tr>
<td>R Square</td>
</tr>
<tr>
<td>Adjusted R Square</td>
</tr>
<tr>
<td>Standard Error</td>
</tr>
<tr>
<td>Observations</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ANOVA</th>
</tr>
</thead>
<tbody>
<tr>
<td>df</td>
</tr>
<tr>
<td>Regression</td>
</tr>
<tr>
<td>Residual</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-0.44767914</td>
<td>-6.90374</td>
<td>0.000977</td>
<td>-0.61437089</td>
<td>-0.280987</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>0.1342997</td>
<td>13.80713</td>
<td>3.58E-05</td>
<td>0.109296063</td>
<td>0.1593033</td>
</tr>
</tbody>
</table>

Among the various single and multiple regression analyses tested, the one with the S&P 500 as the only independent variable was best able to predict the percent of households holding stock directly or indirectly in a given year. Based on the values of the coefficients, the OLS regression equation is \( y = -0.45 + 0.13(x) \), which means that for every one-point increase in a log scale of the S&P 500, the percent of households invested in the market increases by 0.13 (about 13%). The R Square [sic] and Adjusted R Square [sic] indicate that 97% of the variance in the independent variable can be explained by the model, even
after adjusting for sample size. The Significance F is the P-value for the regression, and is very low at 0.00004, suggesting that the regression as a whole is statistically significant. Specifically, this P-value signifies that there is a 0.004% chance that the reported results would have come up in a random distribution, and that we can say with 99.996% probability of being correct that the S&P 500 has some predictive power for household investment. The “Lower 95%” and “Upper 95%” values tell us the range within which we can say the real, underlying values of the coefficients reside with 95% confidence.

The results suggest that changes over time in American household investment rates are driven by fluctuations in the S&P 500. But one major drawback of regression analyses is that they cannot separate causation from correlation. It is therefore equally plausible that fluctuations in household ownership of stocks are driving market returns. It is not unreasonable to assume that 60 million investors could move the market, given that in 2008 over half of the 116,783,000 American households owned stocks. But since the underlying measurement of stock ownership is binary—in other words households own stock or they don’t—our household ownership variable does not capture relative changes in stock ownership within households that do own stock. Most changes in household investment which are the result of market conditions are investors who are scaling their stock exposure back or up. It is only in extreme market situations that so many U.S. households are either eliminating stocks completely from their portfolios or entering the market for the first time in such volumes that this behavior would move markets.

---

For the Hong Kong Sample, eighteen separate combinations of independent variables were tested as predictors of adult stock ownership. The combination with the highest predictive power included three variables: Year, Long-Term, and Short-Term. The final multiple regression model explains 93% of the variability in the percent of Hong Kong individuals owning stock, or 90% adjusting for sample size. The model as a whole is statistically significant with a P-value of 0.0006, meaning that one can say with 99.94% confidence that at least one of the independent variables has some effect on the dependent variable.

The measures of statistical significance are strongest for the Year variable. The P-value for Short-Term passes the 5% significance test, but Long-Term falls short of the 5% significance test at 6.8%. The confidence intervals for Long-Term and Short-Term are quite wide at 95% confidence, and even at 90% confidence, but at least in the case of the latter the interval does not extend both above and below zero for the Long-Term coefficient.
Considering that the Long-Term coefficient narrowly passes statistical significance tests, and one would struggle to believe that use of short-term investment words, which the proportion results showed to be quite infrequent, could be a substantial driver of household investment, the reader might ask why they are included in the analysis. It is because when compared with a multiple regression of only Year on Household Stock Ownership, the addition of these variables improved the statistical significance of the model substantially.

The equation for the regression, \( y = -51.22 + -92.61 \ (x) + 110.22 \ (z) + 0.03 \ (w) \), can be read as follows: for each advancing year, the percent of individuals owning stock increases by 0.03%. For each 0.1% percent increase in the proportion of Long-Term words in Hong Kong publications, the percent of individuals invested in stocks decreases by 9.26%. For each 0.1% increase in the proportion of Short-Term investment words, the percent of individuals owning stocks increases by 11.02%. So what does this equation mean? As the years advance, and in the years when the proportion of long-term investment words decrease and the proportion of short-term investment words increase, the percent of the population owning stock increases.

Based on tests showing Year to be the most statistically significant variable, and based on how small a proportion short-term investment words are of words overall, the key finding of these regression results is that the mere advance of time is the best predictor of household investment in Hong Kong. The influence of the Year variable reflects the fact that household investment has been growing incredibly steadily in Hong Kong, almost
regardless of market fluctuations. Since ownership has been moving rapidly up, for a word
category to have any impact it would likely have to be increasing dramatically, which none
of the categories examined is.

The regression analyses above have demonstrated that in the United States from 1989 to
2007, the rise in markets has been the strongest predictor of household investment in
stocks, not use of polar words. In Hong Kong, polar words have not been a strong
predictor of stock ownership either. From 1994 to 2007 in Hong Kong, the advance of
time, along with the proportion of short and long-term investment words appearing in
publications, was the strongest predictor of the percent of individuals invested in stocks.

It is surprising to find that stock ownership was best predicted by market returns in the U.S.
rather than Hong Kong when the Hang Seng outperformed the S&P 500 over the period of
time under analysis. The S&P 500 climbed 236% between 1989 and 2008. Over the same
period of time, the Hang Seng Index grew 456%, yet it is in the U.S. that market gains
predict investment. This does not mean that the rise in the Hang Seng had no influence on
stock ownership. Over time, the general rise in the stock market cannot but create a strong
incentive to join in, but the results show that fluctuations in stock market returns were not
as good a predictor for changes in stock ownership as the three independent variables in the
multiple regression model at predicting stock ownership.

A weakness of the regression analysis is that because data on household investment is only
available in some cases once every three years, it required using the year as the unit of
analysis, and the model was therefore unable to capture shorter-term fluctuations in language and markets. Next we will turn to a closer analysis of how language and markets move together on a monthly basis.

Does language use fluctuate with the market?

The regression results showed that although annual fluctuations in the use of polar words do not affect household stock investment, the overall tendency by the financial publications of a particular country to use more positive or negative words does predict how fast household stock ownership is growing there. In other words, while market-driven shifts in positive words do not predict changes in household investment in Hong Kong, the fact that Hong Kong publications overall use more positive words than French publications when describing financial news encourages greater growth in household investment there.

The weighted proportion data presented above showed that polar word fluctuations are minimal: the two publications for which data was only available from 2003-2008, *Le Figaro* and the *Standard*, did not exhibit an optimistic bias compared to the other French and Hong Kong publications to reflect the fact that they included only the post dot-com-crash era dominated by large market advances. In the following section, correlation results between market indices and word categories confirm that the influence of market fluctuations month-to-month on language is in fact quite small, and that the overall
tendency of the publications in Hong Kong and the U.S. to be more positive overpowers the differences in polar language that result from market fluctuations.

The below correlation results compare monthly index returns to monthly content analysis results from 1985 to 2008, showing that the monthly percent change in the local market index is uncorrelated with polar (or any other) word use. However, the overall level of the index does correlate fairly strongly with polar words in most cases. The results also show that no time-order relationship exists between monthly index returns and monthly use of polar words that would suggest causation in either direction. In other words, the market does not move predictably up or down in the month prior or the month following an increase in positive or negative words.

There are two ways to look at index returns on a monthly basis: the overall level of a market index or the percent change of the index from the previous month. When the overall level of the stock market is correlated with polar language, as is the case here, this implies a loose association between the level of the market and optimistic language: when the overall level of the index is high, language is typically positive. This also means that positive language is increasing with market indices over time. On the other hand, if the monthly percentage change in the market were correlated with polar language (it is not), this would mean language was highly sensitive to month-to-month changes in index returns, irrespective of the overall level of the market.
It should be noted that the overall levels of market indices are not a perfect measure of short-term fluctuations in the market. For example, the S&P 500 was at 181 at the beginning of 1985, and in the next seventeen years had more than quadrupled to 815 (July 1, 2002). But the month of July 2002 represents the bottom of the dot-com market crash when the S&P had lost 46% from its high on January 2, 2000. So even though in June of 2002 the market would be at a higher overall level than it was in June 1985, it would be falling and it is likely there would be fewer positive words used in June of 2002 than in June 1985. This could result in a negative correlation between optimism and the S&P 500. Common sense tells us that language and the market do move together, but the correlation results might tell us otherwise. Faced with this problem, many scholars control for rising market indices by applying a logarithmic scale to the overall level of the index. A logarithmic scale accounts for the fact that a 10% increase when the S&P 500 is at 1000 will be 100, while a 10% increase when the S&P is at 100 will be only 10, but both should represent the same increase. In the analysis herein, however, the logarithmic scale did not materially affect the correlations of market indices with word category proportions. By Occam’s Razor, or the law of parsimony, which always recommends the simplest explanatory model, we therefore leave the logarithmic scale out, looking only at the overall level of market index returns and the percent change in index returns from the previous month.

Correlation Tables

The following figures show correlation matrices for the newspaper with the largest sample in each country. In the U.S., this is the Wall Street Journal from 1985-2008, in France, Les
Echos from 1993-2008, and in Hong Kong, the South China Morning Post from 1993-2008. Each matrix compares the proportion of the publication’s total words in each category on a monthly basis with both the overall level of the local market index on the last day of the month and the percent change from the prior month. The grey shaded boxes highlight correlations that are statistically significant (anything above 0.254) with a one in one hundred chance that the observed correlation would have occurred by chance. A positive correlation means that the variables move together, a negative correlation implies that they move inversely.

The results show polar words to be uncorrelated with monthly percent changes in the local market index for each publication, but correlated with overall equity market index levels. This implies two drivers of polar word use. First, the use of positive and negative words is in part related to whether the market is in a bull or bear cycle. Second, some publications are becoming more optimistic with time. The stock market has moved up in each country over the period of time analyzed, while the use of negative words has been declining, and in Hong Kong the use of positive words has been increasing.

Third, the results show that the Long-Term Investment category of patterns is correlated with good news and rising markets. In Hong Kong and the U.S., long-term investment words are correlated with positive words, and in France, they are correlated with the equity market index. This implies that the increasing volume of investment-related news observed in the U.S. could help to explain observed secular increases in positive news.

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It is also a troubling finding if one expects, as most value investors do, that households will invest for the long-term when markets are down rather than at their peak.

Fourth and finally, the following results show the Scandal category to be correlated with polar news in all three countries, increasing with pessimistic news and decreasing with optimistic news. In France scandal words are also negatively correlated with the market index. This means that scandals and bad news tend to appear in the news together, as expected. The following pages take a closer look at the nature and degree of each relationship.

Figure 26: U.S. Correlation Matrix – Monthly S&P 500 Index returns vs. proportion of all words in the *WSJ* sample from each content analysis category.

<table>
<thead>
<tr>
<th></th>
<th>S&amp;P 500 % Price chg.</th>
<th>Proportion Negative</th>
<th>Proportion Positive</th>
<th>Proportion Long-Term</th>
<th>Proportion Short-Term</th>
<th>Proportion Scandal</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P 500 % Price chg.</td>
<td>1.00</td>
<td>0.07</td>
<td>-0.11</td>
<td>-0.11</td>
<td>-0.06</td>
<td>0.07</td>
</tr>
<tr>
<td>S&amp;P 500</td>
<td>1.00</td>
<td>-0.54</td>
<td>0.58</td>
<td>0.14</td>
<td>-0.44</td>
<td>-0.11</td>
</tr>
<tr>
<td>Proportion Negative</td>
<td>1.00</td>
<td>-0.43</td>
<td>0.02</td>
<td>0.25</td>
<td>0.36</td>
<td></td>
</tr>
<tr>
<td>Proportion Positive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Long-Term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Short-Term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Scandal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Yahoo Finance; Factiva.
Note: Grey shading represents statistical significance. With alpha of 0.01, which means that the observed correlation between variables would only be random 1 time in 100, a 2-sided test of statistical significance tells us that correlation is statistically significant at + or - 0.254 (df=100).

Figure 26 shows that in U.S. publications, positive words are used with more frequency, and negative words with less, in the months that the level of the market is higher. There is no apparent correlation between percent change in the S&P and the monthly occurrence of words in any category. The positive correlation +0.58 between the Positive category and
the S&P 500, and negative correlation -0.54 between the Negative category and the S&P are both strong.

Correlations between polar words and the S&P 500 are in part the result of rising markets and rising optimism in U.S. publications. Figure 27 below suggests that since both the S&P 500 Index and positive words in the *Wall Street Journal* have increased from 1985-2008, it would seem that the correlation between the Positive word category and the S&P 500 can be explained by the simultaneous upward trends in each. While the negative correlation between the market index and negative words is in part due to the decrease in words from the Negative category and increase in the S&P 500, a chart which plots negative word use and the S&P would suggest that they do move inversely. Especially after about 1999, it is clear from Figure 27 that when the market is in a bull cycle, negative words drop off, and when it is a bear cycle, negative words increase.

Figure 27: Proportion of words falling in Positive and Negative categories in *Wall Street Journal*, 1985-2008.
The relationship between Negative category words and the market is stronger at the annual level. For the combined U.S. publications, the annual correlation between negative words and the S&P 500 is -0.77, significantly higher than the monthly correlation for the New York Times of -0.61 and for the Wall Street Journal of -0.54. This means that the level of the S&P 500 in a given year is a better predictor of the proportion of negative words in that year than the level of the index in a month is a predictor of negative words in that month. This confirms the visual evidence from Figure 27 above, which shows that negative words and the S&P 500 move inversely. It seems that negative words react to the level of the markets, or vice versa, in extreme, prolonged bull or bear market cycles of the sort we have seen since 1998, rather than month-to-month fluctuations. In the case of the Positive word category, the simultaneous upward trends in both the S&P 500 and positive words explain the correlation between those two variables.

The correlation table also reveals that long-term investment words move in tandem with the Positive category. The Positive and Long-Term categories are moderately correlated +0.40. This medium-strength correlation is stronger at the annual level for the combined U.S. sample (which includes the New York Times), at +0.56.\textsuperscript{231} This is in part because both positive and long-term investment words in the Journal have been increasing simultaneously since 1985. This could suggest that investment-related news is more likely to be positive, and which would have serious implications for what an increase in investment-related content means for financial news.
Finally, despite some tendency for scandal words to coincide with bear markets since 1998, the near-term correlation is not as strong as expected.\textsuperscript{232} Although the correlation matrix in Figure 26 reports no statistically significant monthly correlation between scandal words and the S&P 500 for the full period from 1985-2008, if we isolate the period of more volatile market activity since 1998, scandal words and the S&P 500 have been negatively correlated on a monthly basis, at -0.32 for the \textit{New York Times}, and -0.31 for the \textit{Wall Street Journal}.\textsuperscript{233}

The correlation between scandal and negative words (+0.36) is in part due to the fact that words in both categories have been decreasing since 1985 in U.S. financial publications, but it seems that use of scandal words does coincide with market declines and negative news, especially since 1998. The weakness of this correlation reveals that scandal stories take months or years to work themselves out in courtroom and regulatory battles, and are by nature not the type of stories that would fluctuate on a monthly basis.

\textsuperscript{232} The correlation between positive and scandal words in the \textit{Journal} (-0.33) is counterbalanced by an opposite correlation between those categories in the \textit{Times} (+0.28), therefore the results are inconclusive for the U.S. sample.

\textsuperscript{233} With alpha of 0.01, which means that the observed correlation between variables would only be random 1 time in 100, a 2-sided test of statistical significance tells us that correlation is statistically significant at + or - 0.254 (df=100)
Figure 28: Hong Kong Correlation Matrix – Monthly Hang Seng
Index returns vs. proportion of all words in the *South China Morning Post* sample from each content analysis category.

<table>
<thead>
<tr>
<th>Correlation Matrix - <em>South China Morning Post</em>, Mondays 1993-2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hang Seng % Price chg.</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Hang Seng</td>
</tr>
<tr>
<td>Proportion Negative</td>
</tr>
<tr>
<td>Proportion Positive</td>
</tr>
<tr>
<td>Proportion Long-Term</td>
</tr>
<tr>
<td>Proportion Short-Term</td>
</tr>
<tr>
<td>Proportion Scandal</td>
</tr>
</tbody>
</table>

Source: Yahoo Finance; Lexis Nexis.
Notes: Grey shading represents statistical significance. With alpha of 0.01, which means that the observed correlation between variables would only be random 1 time in 100, a 2-sided test of statistical significance tells us that correlation is statistically significant at + or - 0.254 (df=100).

Figure 28 shows for the Hong Kong sample similar relationships to those we saw in the U.S. between the market index and the Positive and Negative categories. There is no statistically significant relationship between monthly percentage price change in the index and any of the word categories, but the Negative category is negatively correlated -0.39 with the Hang Seng Index, while the Positive category is positive correlated +0.35 with the Hang Seng. These correlations are moderate. Note that similar correlations from the *Standard* show that the correlation between the Hang Seng and Negative words in that paper is quite strong at -0.67.

Unlike the U.S. and French samples, the correlation between negative words and the market index is stronger at the monthly than the annual level. For the combined Hong Kong publications, the annual correlation between the Negative category and the Hang Seng Index is -0.06 compared to corresponding monthly correlations for the *South China*
Morning Post of -0.39 and for the Standard of -0.67. This indicates that language is much more responsive to short-term moves in markets in Hong Kong, or vice versa.

Recall the earlier finding that Hong Kong papers typically use more investment-related words overall when compared with the U.S. and France. A greater focus on investments in the news could help to explain greater volatility in Hong Kong markets. In the most recent stock market boom and subsequent bust, the Hong Kong Hang Seng Index climbed higher and fell farther. From the market low following the dot-com crash to the highest point and down again, the Hong Kong Hang Seng gained 283% and lost 67% from April 2003 to October 2008. Compare this to France, where the CAC 40 Index gained 156% and lost 54% from March 2003 to November 2008 from trough to peak to trough, and to the U.S., where the S&P 500 gained 103% and lost 52% from July 2002 to November 2008. Is it possible that polar language played a part in the increased volatility of Hong Kong markets? The stock market boom and bust was mildest in the U.S., where annual correlations were higher than their monthly counterparts, and strongest in Hong Kong, where short-term co-movements drove the correlation between negative words and the Hang Seng Index over the same period of time. It is possible that a greater tendency for language to react to market moves would create the ideal circumstances for what Robert Shiller describes as a ‘feedback loop’ where talk of price changes creates a self-fulfilling prophecy as news stories feed a bubble’s inflation or deflation.234

Figure 29 shows the standard deviations of words for each category, as well as the group and national averages which are weighted by each publication sample’s word count so that the larger samples are weighted more heavily. A low standard deviation suggests language use is more stable, while a high standard deviation would suggest it swings more based on the news of the month.

![Figure 29: Standard deviations of the proportion results for each category by publication, 1993-2008.](image)

<table>
<thead>
<tr>
<th></th>
<th>Positive 325 patterns</th>
<th>Negative 1249 patterns</th>
<th>Long-Term 17 patterns</th>
<th>Short-Term 44 patterns</th>
<th>Scandal 52 patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYTimes</td>
<td>0.0032</td>
<td>0.0013</td>
<td>0.0020</td>
<td>0.0002</td>
<td>0.0004</td>
</tr>
<tr>
<td>WSJ</td>
<td>0.0020</td>
<td>0.0013</td>
<td>0.0017</td>
<td>0.0003</td>
<td>0.0003</td>
</tr>
<tr>
<td>Le Monde</td>
<td>0.0037</td>
<td>0.0013</td>
<td>0.0026</td>
<td>0.0005</td>
<td>0.0003</td>
</tr>
<tr>
<td>Le Figaro**</td>
<td>0.0025</td>
<td>0.0010</td>
<td>0.0021</td>
<td>0.0003</td>
<td>0.0005</td>
</tr>
<tr>
<td>Les Echos</td>
<td>0.0019</td>
<td>0.0007</td>
<td>0.0016</td>
<td>0.0002</td>
<td>0.0001</td>
</tr>
<tr>
<td>S. China M.P.</td>
<td>0.0031</td>
<td>0.0018</td>
<td>0.0025</td>
<td>0.0005</td>
<td>0.0007</td>
</tr>
<tr>
<td>Group avg.</td>
<td>0.0027</td>
<td>0.0013</td>
<td>0.0021</td>
<td>0.0003</td>
<td>0.0004</td>
</tr>
<tr>
<td>US average</td>
<td>0.0026</td>
<td>0.0013</td>
<td>0.0018</td>
<td>0.0003</td>
<td>0.0003</td>
</tr>
<tr>
<td>France avg.</td>
<td>0.0027</td>
<td>0.0010</td>
<td>0.0021</td>
<td>0.0003</td>
<td>0.0003</td>
</tr>
<tr>
<td>HK average</td>
<td>0.0027</td>
<td>0.0017</td>
<td>0.0025</td>
<td>0.0004</td>
<td>0.0005</td>
</tr>
</tbody>
</table>

The French group average standard deviation for the Negative category is 0.10%, below the U.S. average of 0.13% and the Hong Kong average of 0.17%. We can see that words in Hong Kong publications stray the furthest from the mean. This provides further evidence that Shiller’s feedback loops of negative news may be driving greater volatility in Hong Kong markets.

Much like in the Journal, the proportion of words in the Long-Term Investment category is moderately correlated +0.45 with those in the Positive category in the South China

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235 Standard Deviation is a measure of variability around the mean (or average). It is an imperfect tool for the purposes of this analysis, but it approximates how much the proportion of words fluctuates above and below the trendline.
Morning Post. But remember that Hong Kong publications have been using both more positive words and more long-term investing words with time. As with the U.S. sample, this implies that in Hong Kong an increasing portion of financial news is being taken up by positive stories and investment stories. This is further evidence that investment-related news is more likely to be positive than negative.

The correlation between the Hang Seng Index and scandal words is weak and not statistically significant, even during the abbreviated period from 1998-2008 when scandal words and the S&P 500 were correlated. It does not seem that markets have a particularly strong effect on the use of scandal words on a monthly basis.

Much like in the U.S., scandal words in Hong Kong are correlated with negative news, but not with markets. The Scandal category is correlated with Negative words +0.35 on a monthly basis and quite strongly at +0.72 on an annual basis.\(^{236}\) However, the annual correlation between the Negative and Scandal word categories for the combined Hong Kong sample is even stronger and statistically significant at +0.72.\(^{237}\) Negative and Scandal categories are mutually predictive of one another on both a monthly and an annual basis.

\(^{236}\) Since negative words in the South China Morning Post have been decreasing while scandal words have been increasing, the positive monthly correlation is a true reflection of monthly co-movements.

\(^{237}\) Results are statistically significant at 0.641 for alpha=0.01, at 0.514 for alpha=0.05 and 0.441 for alpha=0.10, (df=13).
Figure 30: French Correlation Matrix – Monthly France CAC 40

Index returns vs. proportion of all words in the *Les Echos* sample
from each content analysis category.

<table>
<thead>
<tr>
<th></th>
<th>CAC 40 % Price chg</th>
<th>Proportion Negative</th>
<th>Proportion Positive</th>
<th>Proportion Long-Term</th>
<th>Proportion Short-Term</th>
<th>Proportion Scandal</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAC 40 % Price chg</td>
<td>1.00</td>
<td>0.21</td>
<td>0.04</td>
<td>0.12</td>
<td>0.00</td>
<td>0.10</td>
</tr>
<tr>
<td>CAC 40</td>
<td>1.00</td>
<td>-0.73</td>
<td>-0.20</td>
<td>0.57</td>
<td>-0.39</td>
<td>-0.31</td>
</tr>
<tr>
<td>Proportion Negative</td>
<td>1.00</td>
<td>0.26</td>
<td>-0.52</td>
<td>0.36</td>
<td>0.15</td>
<td></td>
</tr>
<tr>
<td>Proportion Positive</td>
<td>1.00</td>
<td>0.11</td>
<td>-0.30</td>
<td>-0.26</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Long-Term</td>
<td>1.00</td>
<td>0.11</td>
<td>-0.33</td>
<td>-0.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Short-Term</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Proportion Scandal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Yahoo Finance; LexisNexis.

Notes: Grey shading represents statistical significance. With alpha of 0.01, which means that the observed correlation between variables would only be random 1 time in 100, a 2-sided test of statistical significance tells us that correlation is statistically significant at + or - 0.254 (df=100).

Figure 30 shows that negative words are very strongly negatively correlated -0.73 to moves in the France CAC 40 Index. This is much stronger than the equivalent correlation the *Wall Street Journal* (-0.54) or the *South China Morning Post* (-0.39). This can in part be explained by the fact that the CAC 40 has increased during the time that the Negative category decreased. If the majority of this correlation were attributable to a relationship between negative words and short-term market moves, we would find a strong visible inverse relationship between the two variables in Figure 31, below. There is very mild evidence of such a relationship, but the proportion of negative words remains constant through equity market bull and bear cycles.
The correlation table indicates that long-term investment words in Les Echos are positively correlated with the market index (+0.57). The Negative category is also negatively correlated -0.52 with the Long-Term category. Overall, we find a similar trend to that of the U.S. and Hong Kong: these results suggest that market gains are accompanied by more investment-related news. This is bad news for those households who, lacking expert financial models and information, would look to the financial press for contrarian long-term investment ideas.

Finally as expected, the Scandal category is negatively correlated with both the CAC 40 Index (-0.31) and the Positive category (-0.26), albeit somewhat weakly. The 12-month moving average trendline in for scandal words in Les Echos in Figure 32, below, is a visual representation of the correlation relationship between the Scandal category and near-term
shifts in the CAC 40 Index, showing that scandal words do appear to fluctuate with equity markets.

Figure 32: Proportion of words falling in Scandal category in *Les Echos* 1993-2008.

Conclusions

The correlation matrices showed that polar words were correlated with markets in each country, but that in general, this correlation was weak on a short-term basis. The correlations were generally stronger on an annual than a monthly basis. Long-term investment words tended to be correlated with positive news and market gains. Finally, the scandal category behaved as expected, and was correlated with negative news and market losses.

While the correlation matrices showed that the market moves in tandem with the Positive category for U.S. and Hong Kong publications, and inversely to the Negative category in all publications, these correlation results are in part a reflection of long-term trends in language and markets. The correlations between positive words and markets in the U.S.
and Hong Kong are the result of the general rise of both positive words and equity indices over time. On the other hand, the correlation between negative words and markets is attributable to a combination of long-term trends and short-term market fluctuations. It is only in Hong Kong that the correlation between negative words and the market index was almost entirely the result of near-term market shifts. Perhaps the strong correlation between negative words and short-term market fluctuations contributed to the higher observed volatility in Hong Kong markets via Robert Shiller’s concept of media feedback loops. In those months when Hong Kong markets fell, newspapers fueled the fire, prompting panic selling, which prompted more negative news, and so on. This could lead to greater price swings, or volatility in Hong Kong markets.

The use of long-term investing words coincided with gains in French market indices and positive news in the U.S. and Hong Kong. This suggests that investment-related news is more likely to be positive news. This is also interesting because the foundation of value-investing strategies is to identify undervalued or out of favor assets. The use of long-term investment words should therefore increase in depressed markets or when there is a plethora of negative news. It may be, therefore, that newspapers are encouraging readers to make value/long-term investments at the worst possible time: the top of the market.

Time Order Tests

In order to determine whether there might be a causal relationship lurking in the observed correlations with market indices, I created time-order correlation matrices identical to those
reproduced here, but which measured each category’s correlation with market indices one month in the future and one month in the past. Neither the future nor the past month’s index returns were a consistently better or a worse predictor than the current month for the proportion of polar words used. If there is a time order relationship, monthly data is not sufficiently granular to capture it.

How has optimism changed over time?

Graphical plots of each category’s monthly proportion of total words against time in the graphs below show that some categories are consistently rising or falling as the years advance. In particular, use of positive words by financial publications has been increasing in the U.S. and Hong Kong while use of negative words has decreased. Use of long-term investment words has been increasing in most publications, with the exception of the smaller-sample Business sections of general news dailies, where long-term investment word use has been stable or slightly declining.

Time-Series Graphs: Trends in Polarity

Figure 33 shows that from 1985-2008 in the *Wall Street Journal*, optimistic language has been increasing, while pessimistic language has been decreasing. The light grey line represents the proportion of total words appearing that fall into the Positive category, and
the darker grey line represents the proportion of total words that fall into the Negative category. The dotted line represents the monthly level of the S&P 500 during this time.

Figure 33: Proportion of words falling in Positive and Negative categories in Wall Street Journal, 1985-2008.

The thin black lines running through the center of the Negative and Positive Word Proportions are trendlines. In the case of the Positive trendline, according to the equation, $y = 3E^{-07}x + 0.008$, the slope is $3E^{-07}$. This means that with each passing month, the proportion of positive words increases by $3E^{-07}$. The visual representations confirm changes that are small but steady over time, and that are consistent across publications. The darker grey line denotes the Negative category proportions, and displays visually what the equation to the right shows mathematically: that the proportion of negative words has decreased from 1985-2008. If we compare the slopes of the Positive and Negative categories, the proportion of positive words is increasing more quickly than the proportion of negative words is decreasing.
Another interesting finding brought to light by Figure 33 is that while the Positive word proportion line marches upward fairly consistently, from about 1998-2008 the Negative word proportion line begins to visibly move inversely to the S&P 500. This would suggest that the Negative word list is becoming more sensitive to market fluctuations, and/or is more sensitive to market fluctuations in volatile markets. A similar trend is evident in the New York Times data as we can see from Figure 34, and suggests that negative words drop off precipitously leading up to a bubble.

Figure 34: Proportion of words falling in Positive and Negative categories in New York Times, 1985-2008.

Next, we turn to Figure 35, which shows the same trends of increasing optimism and decreasing pessimism in Hong Kong’s South China Morning Post from 1993-2008.
U.S. data showed that since about 1998, the proportion of Negative words moved more or less inversely with the S&P 500. Figure 35, above, and Figure 36, below, show that the proportions of negative words in both Hong Kong publications show a very similar relationship with the Hang Seng Index: as one goes up, the other goes down.
French publications behave somewhat differently from those of the U.S. and Hong Kong with respect to polar words and equity market returns. Figure 37, Figure 38, and Figure 39 show the proportions of polar words appearing in *Les Echos* and *Le Monde* from 1993-2008, and in *Le Figaro* from 2003-2008. First, in all three publications, the proportion of all polar words—both positive and negative—has been decreasing since 1993. This consistent behavior among French publications suggests that the observed trend reveals a meaningful France-wide trend. Even isolating the Positive Supplement category, whose correlations better matched my expectations, the trendline slope is still negative (albeit slightly less steep). This distinguishes the French sample from those of the U.S. and Hong Kong: While optimism is increasing and pessimism decreasing in the U.S. and Hong Kong publications with time, polar words of either kind are decreasing in the French publications included in this analysis. Second, the inverse relationship between Negative words and the market index is visible, although less pronounced than for U.S. and Hong Kong publications.

Figure 37: Proportion of words falling in Positive and Negative categories in *Les Echos*, 1993-2008.
The evidence presented in the above figures showed that all polar words are decreasing in French publications, while positive words are increasing and negative words decreasing in U.S. and Hong Kong publications. From this we can draw the following conclusions: first, that optimism has been on the rise in U.S. and Hong Kong publications during a period of time that included major market gains. Second, that in recent volatile markets since about
1998, the use of negative words has moved inversely with short-term moves in financial markets in the U.S. and Hong Kong, and to a lesser degree in France, where polar word use has stayed at a constant, though declining, rate.

Long-Term Investment word trends

Results show that in all three countries, investment-related topics are becoming ever more important. While words related to short-term investment have been decreasing over this time period, given that our earlier proportion results revealed that long-term investment terms are much more commonly used than short-term investment terms by all publications, we focus on long-term words as representative of overall discussion of investment-related topics.

Time-series graphs from 1985-2008 of the Wall Street Journal, Les Echos, and the South China Morning Post show that words in the Long-Term category have increased over time in these publications. Note that in the U.S. and France, long-term investment words are increasing only in publications that focus exclusively on financial news. In The New York Times, Le Monde, and Le Figaro, all of which are general news dailies, long-term investment words have been stable or declined slightly in the Business section. Below, I present results from the Wall Street Journal, Les Echos, and the South China Morning Post, as these represent by far the largest samples for each country.
In the U.S., from 1985-2008, the proportion of long-term investment words in the *Wall Street Journal* has been increasing. Long-term investment words do not appear to move with or against the S&P 500.

Figure 40: Proportion of words falling in Long-Term category in *Wall Street Journal, 1985-2008.*

In Hong Kong from 1993-2008, long-term words have increased and also do not appear to be swayed by moves in the local equity market index.

Figure 41: Proportion of words falling in Long-Term category in *South China Morning Post, 1993-2008.*
In France, the number of long-term words has been increasing since 1993 in *Les Echos* (Figure 42). It does not appear that long-term investment words move in a consistent way with or against changes in the CAC 40 Index.

Figure 42: Proportion of words falling in Long-Term category in *Les Echos* 1993-2008.

Over time, long-term investment words have generally increased in financial news in the U.S., France and Hong Kong. This is important, because previous correlation data showed that long-term investment words tend to be accompanied by optimistic news. In the U.S. and Hong Kong the Long-Term Investment category was positively correlated with the Positive category, and in France it was positively correlated with the CAC 40 Index, and moved inversely with negative words.

Scandal Words

Scandal words have been decreasing in the U.S. over time and in the volatile period since 1998, move inversely to the S&P 500. Conversely, they are increasing in Hong Kong and
are only tied to markets since 2004. In France, scandal words have been steadily high but slightly increasing, and appear more frequently when the stock market falls.

In the figures below, the grey lines represent the proportion of scandal words appearing each month for the respective publication. Two black trendlines run through the grey line: one straight OLS regression line indicating the broad, long-term direction of the category proportion, and another squiggly black line which represents the 12-month moving average of the proportion of scandal words appearing in the publication. The 12-month average gives a clearer picture of how proportions react for a time period longer than a month, but shorter than the full multi-year sample, helping to compare medium-term trends in scandal words to market moves. The local market index is represented by the dotted line in each graph.

The graphs below show two things: first, Figure 43 shows that scandal words have been increasing steadily in the *New York Times* while they have been decreasing slightly in the *Wall Street Journal* since 1985. As previously noted in the initial proportion analysis, over the full 23 years the *Times* uses a much smaller proportion of Scandal category words than the *Journal*, a surprising finding given that the latter is typically thought to be more pro-business. Plotting scandal word use over time sheds more light on the situation, showing that over time the *Times* has become more hawkish with regard to scandal in the business world while the *Journal* has toned its scandal coverage down although it remains elevated relative to the *Times*. 
Second, the 12-month moving average trendlines in Figure 43 show that in both U.S. publications, the proportion of scandal words moves inversely with the S&P 500 Index, especially since 1998. In the past 10 years as volatility has increased, the level of the S&P 500 has become a better predictor of the number of scandal stories in U.S. publications (or vice versa).

Figure 43: Proportion of words falling in Scandal category in the


The time-series graphs for the Scandal category in Hong Kong publications in Figure 44, below, tell us several things: first, the proportion of words in the Scandal category has been rising with time. This increase is from a very low starting point: recall that Hong Kong publications still use the least scandal-oriented words overall of any country. Second, the 12-month moving average trendlines in Figure 44 confirm that the Scandal category and the Hang Seng Index do not move inversely, except in the case of the *Post* after about 2004, when the proportion of scandal words fell and then rebounded as the market gained and then dropped off precipitously.

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238 The category’s increase in the *South China Morning Post* is counterbalanced slightly by the drop in the *Standard*, however given that in the weighted average proportion of scandal words in the *Standard* is higher overall (0.003% vs. 0.002% for the *Post*), the overall trend for the Scandal category in the Hong Kong sample from 1993-2008 is increasing.

Use over time of the Scandal category in French publications is of particular interest, because French publications use on average a much higher proportion of scandal-related words than either U.S. or Hong Kong publications. Our initial weighted average proportion results from Figure 22 showed that French publications used the highest proportion of Scandal words, at 0.004 compared to 0.003 for the U.S. and 0.002 in Hong Kong.

Figure 45 shows the time-series results for Les Echos, the French publication with the largest sample. The Scandal category is increasing very slightly with time. Scandal words do seem to fall off when the market is doing well, and increase when the market falls.
Overall, the results from the U.S., Hong Kong, and France confirm the original hypothesis that scandal stories increase with market losses, however this phenomenon was not isolated to the United States. An unexpected finding was that this trend is a recent one in the U.S. and Hong Kong that coincides with periods of greater volatility in the markets.
CONCLUSION

The purpose of this study was to better understand why investing in the stock market is so widespread in the United States, and to test whether an optimistic culture might in part explain this higher-tendency for risk-taking with one’s savings. The data revealed that optimistic culture and language do not explain country level differences in overall ownership, but are highly correlated with growth in stock market participation. Hong Kong, where stock ownership is growing the fastest, used the most optimistic, and generally the most pro-business language. France, where stock ownership growth is most sluggish, uses the most pessimistic, and anti-business language. The U.S., which lies somewhere in between, is not the free-market leader of the world that it occasionally claims to be. Regulation, entitlement spending, and hundreds of billions of stimulus dollars being poured into the economy have vastly increased the role of government in American life.

Hong Kong assumed the role I expected for the U.S. in terms of optimism and use of investment words. Hong Kong newspapers used more positive, fewer negative, fewer scandal, and more investment words overall compared with the U.S. and France. Like France and the U.S., Hong Kong used many more long-term than short-term investment words, and therefore used more long-term words, not fewer, than the U.S., contrary to my expectations given that the prevalence of short-term investing in Hong Kong. France, on the other hand, used the most negative and scandal words, as well as the fewest positive
words. The more pro-business language trends in Hong Kong corresponded with much faster growth in retail investment (171% from 1992-2004) compared to the U.S. (37%) and to France (2.5%).

How do we explain the fact that the U.S. still has the highest household investment rate? Is it because Hong Kong is merely playing catch-up in term of middle class formation? Growth in retail investment does not seem to be propelled by a growing middle class in Hong Kong. In 2007, the median annual household income for the entire adult population was HK$270,000 (US$34,600) while that of stock investors and those who had traded stock in the past 12 months was more than 50% higher, at HK$420,000.239 This is largely unchanged from 1997, when the retail investor survey found median annual household income to be exactly the same, at HK$270,000, while for stock investors it was HK$390,000.240 This income data shows that if anything, stock investing has become less of a middle-class endeavor over the last 10 years. The Hong Kong Census and Statistics Department’s survey results confirm that income disparity increased between 1996 and 2006, a period when the median annual household income increased very little from HK$206,640 to $207,000 in real terms.241 Hong Kong’s Gini Coefficient, a standardized measure of income disparity, also indicates that income inequality has increased over the past decade. The Gini Coefficient (GC), based on original pre-tax household income,

increased +0.015 in Hong Kong from 0.518 in 1996 to 0.533 in 2006. Compare this to the United States, where the coefficient actually decreased -0.005 from 0.455 in 1996 to 0.450 in 2006.²⁴² It would not seem that the development of a middle class would explain the rise in stock investment among average citizens. Further, the fact that stock ownership in France is lower than Hong Kong and is barely growing at all suggests that Hong Kong is not merely playing catch up.

Part of the reason why roughly half of all American households own stock while only one third of Hong Kong Households do and only one quarter of French households do is that the U.S. securities industry has been open for business and with widely accessible services for a longer period of time. As Hong Kong’s economy grows, and as its citizens become wealthier because of economic development and currency appreciation, its securities industry will also likely grow, while its legal system strengthens to protect investor rights. Under these circumstances, stock ownership in Hong Kong could well surpass that of the United States.

Positive word use does seem to be related to capitalism, but contrary to my expectations, it is not the U.S. that is the most capitalist despite the fact that we have the highest household investment rate. One of the reasons that my hypotheses failed to produce the expected results was that many of the things I attributed to the U.S. (i.e., using more positive than negative words, using more long-term investment words) were universal.

A second goal of this study was to measure whether the shorter-term investment style in Hong Kong was reflected in greater use of short-term investment words. This second hypothesis was also disproved. In Hong Kong, where investment in stocks is growing the fastest, publications used the most investment words (both long and short term) overall. All publications, regardless of national origin, used more long than short-term investment words. This is a testament to the canonical status of value investing as a strategy. The results also suggest that the use of investment words also corresponds with higher growth of stock ownership. While not everyone has the patience to carry fundamental valuation strategies to term, the language of value investing still dominates the conversation about investing, and technical analysis remains relegated to second-fiddle status.

The third goal of this study was to test whether scandal words were more prevalent in American newspapers during market downturns. This hypothesis was confirmed. However, the data revealed an additional interesting fact: scandal words were most prevalent in France, where investment growth was the slowest. French newspapers used the most scandal words in all market conditions, while Hong Kong used the fewest. This further supports the other findings of this paper, showing that Hong Kong, where investment is growing most quickly, is the most pro-business culture, using the most positive, the most investment oriented, and the fewest scandal oriented words in all market conditions. France, where stock investment growth is most sluggish, is the least pro-business. I do not claim to have found a cause of investment growth, but I believe this research reveals a consistent and non-trivial relationship between culture (as measured by language) and investment behavior.
One indication that the political orientation of a country has a real effect on how language is used is that the left-right bias that was found internationally, with the most socialist country using the least pro-business language, and vice versa, was not found to exist intra-nationally. In other words, the *New York Times*, which is broadly considered to be significantly less pro-business than the *Wall Street Journal*, did not actually use fewer positive words, or more scandal words. In fact, the *WSJ* used both more scandal and more negative words than the *New York Times*’ Business section over the long term. Similarly, in France, *Le Figaro*, typically thought to be more right-wing than *Le Monde*, was no less negative. And finally, in Hong Kong, the tabloid *Standard* publication did not use more scandal-oriented words than the more serious *South China Morning Post*. Publications within countries are more—much more—alike than supposedly left-right like-minded publications in other countries. One question that would require further research is whether the U.S. moves more toward a French model of social welfare, and if so, whether the way we use language would change. Thus far, I have found little evidence of this. In fact, the proportion of positive words in the U.S. has been steadily increasing over the years.

Within countries, market gains alone did not predict the aggregate level or rate of growth in investment at the national level. Although the Hong Kong stock market has outperformed the French and US markets from 1993 to 2008,\textsuperscript{243} the higher growth in Hong Kong retail stock ownership from 1992-2004 did not correspond with higher market returns during this period. The massive 171\% growth in stock ownership by Hong Kong retail investors

\textsuperscript{243} 1993-2008: Hang Seng, 250\%; S&P 500, 206\%; CAC 40, 182\%.
occurred from 1992-2004, before the Hang Seng Index overtook the S&P 500. During this time period, the Hang Seng somewhat underperformed the S&P 500 (returning 147% compared with 176% for the S&P), despite the fact that growth among U.S. household stock ownership was a much lower at 37%. Nonetheless within the U.S., of all the variables analyzed herein, annual stock market returns are the strongest predictor of annual changes in stock ownership.

The results also showed that in many cases the relationship between market moves and language fluctuations was loose, with two exceptions. First, monthly percentage changes in negative words were negatively correlated with changes in index levels in the U.S. and Hong Kong. As one would expect, as stock markets fall, negative news takes up a greater percentage of overall news. However no time order relationship that would suggest causation could be established at the monthly level. Second, long-term investment words were positively correlated with the French stock market and negatively correlated with negative news on a monthly basis in France. In the U.S. and Hong Kong, long-term investment words were correlated with positive words. This relationship seems counterintuitive given that the most fundamental tenet of value investing is the belief that one should to buy stocks that are out of favor. But more importantly, this suggests that more optimistic news is an unintended byproduct or externality of increasing investment-related news content discovered in both this analysis and others.  

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One of the most interesting findings of this study was that positive words have been increasing and negative words decreasing as a percentage of overall words in the U.S. and Hong Kong, but not in France. In French business news, both positive and negative words are decreasing. Even with the massive market losses of 2008, American and Hong Kong newspapers are growing more optimistic by the day. A possible explanation could be that, as Richard Parker has found, much of current financial news is divided into “personal finance” and “crisis” articles, and that the frame of “personal finance” lends itself more readily to positive spin from a whole industry that is geared towards selling products. This explanation is supported by the evidence from this study, which show the countries which used the most optimistic language were also those that used the most investing words overall. Hong Kong used by far the most investing words, with the US second, and France trailing behind. When the Wall Street Journal calls the “expert” at Morgan Stanley to weigh in on a recent market drop, he is much more likely to talk about what stocks look cheap than to recommend portfolio liquidation, even if that is what he is doing in his personal account. Everyone from the brokers to the research analysts to the Bloomberg reporters on Wall Street gets paid when markets rise, and therefore have a strong incentive to say, and perhaps to believe, that markets are going up.

Applications and further research

This final section first examines practical applications of these results for investors, the securities industry, professional journalists, and regulatory agencies; and second reviews

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how further research could improve the design and build upon the findings of the present study.

Applications for investors

China and India are the two most populous countries in the world. Together, they made up almost 37% of the world’s population in 2010, and yet their combined market capitalization represented just over 10% of the global equity market. By contrast, the US made up just 4.6% of the world’s population in 2010 while boasting nearly 30% of world equity market capitalization. As incomes rise in emerging market economies like China and India, there is vast potential for upside in equity markets, especially if domestic populations enter them at the rate Hong Kong experienced over the past decade. Therefore any insight into which emerging market countries are culturally-inclined to experience the most rapid demand growth from the household sector would be invaluable.

The content analysis tool developed herein could theoretically predict which emerging markets would exhibit faster growth in domestic ownership of local equity markets, and thus, which equity markets might have long-term upside from growing internal demand for shares. If this content analysis tool proved, with further testing, to be an effective tool for measuring local investment culture and a population’s propensity to enter equity

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247 Market capitalization based on country weight in the MSCI All-Country World Index on 4/18/2011.
248 Ibid.
249 Note here that domestic demand for shares is not the sole determinant of a rising stock market, though it helps. Foreign demand, supply of shares, economic growth, and corporate earnings are among the key contributors to the price fluctuations of a country’s overall equity market index.
markets, one could devise a trading strategy whereby one would invest in the broad indices of those countries with large populations such as China, India, Indonesia, and Brazil whose national press typically uses the most positive and fewest negative words, the greatest number of investment-related words, and the fewest scandal-related words.

Large banks offering retail brokerage services and online retail brokers looking to expand their services into emerging markets could also use this content analysis framework for market research on where to invest resources. China and India both have over a billion citizens, and have rapidly growing economies, but middle class formation takes time, and equity investment is still low in both countries compared to developed markets. GDP has grown on average 10% per year for two decades in China, and by over 6% in India according to the IMF while the U.S. grew just 2.7% per year over the same period of time.\textsuperscript{250} And yet in India, as of 2003 just 7.4% of households owned any type of investment in financial markets according to the latest survey of household investment.\textsuperscript{251} In China, ownership is even lower. Just 5% of Chinese households owned stocks according to a 2005 survey by Gallup.\textsuperscript{252} This is in part because savings is extremely high in both countries: Chinese households saved 28% of personal income and Indian households saved 32% in 2008.\textsuperscript{253} But rising inflation in emerging markets has in some


cases created negative real interest rates, thus eroding the value of holding cash as an investment and making equity ownership look more attractive.

Clearly there is room for growth in equity market participation in both countries, but participation will likely grow at different rates in each place. Which cultures have the highest propensity for wide-scale household equity market participation? Given China’s cultural proximity to Hong Kong, I would expect it to exhibit a similar pro-business bias in news reporting, and for equity ownership to grow faster in China than in India. Results from the 2006 Gallup World Poll support this hypothesis: the survey found that Chinese respondents are more optimistic about the near future than their Indian counterparts, and that economic growth has led to greater feelings of well-being in China than it has in India. A content analysis of financial news in each country to determine which might be the better long term equity market bet for retail brokerage investment would be a natural next step for this research project.

Applications for journalists and regulators

The results presented herein provide two material findings that could have implications for the profession of journalism and for regulatory policy. First, the finding that scandal words were strongly negatively correlated with the level of the overall equity market and with optimistic news on an annual basis suggests there is room for improvement in the ways in which both regulatory agencies and journalists manage their respective roles as financial markets watchdogs. Second, the fact that investment-related words were positively

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correlated with optimistic news presents a conundrum for journalists who seek to provide unbiased coverage of investment news.

The fact that scandal stories increase in financial market downturns suggest one of two things. Either you have a regulatory system that is reactive rather than proactive, and journalists are merely reporting a greater number of scandals being uncovered by traditional law enforcement and regulatory officials in times of market stress. Or you have a constant number of scandals being uncovered, but a reactive press which increases scandal news coverage in the context of market losses as public appetite for scandal news increases. The reality most likely lies somewhere between these two extremes, but either scenario presents a problem for the professional journalist, who in the first scenario operates as a mere scribe rather than an agent of the Fourth Estate, and in the second scenario exacerbates the problem of an underfunded regulatory apparatus by providing reactive rather than pro-active coverage. A regulatory system and a public that is primarily reactionary rather than preemptive is dangerous for many reasons, not least of which being that the innocent can be blamed in witch hunts and the guilty are able to do more damage.

The analysis herein suggests that differences between countries in use of scandal-related words is not merely the result of a greater incidence of actual scandals in France relative to the U.S. and Hong Kong. The U.S. ranks lowest in control of corruption of the three countries, in the 85th percentile, and Hong Kong ranks highest, despite the fact that French
publications use scandal-related words more frequently than those in the U.S. However within each country, further research might reveal whether the coincidence of scandal stories and market downturns is related to an increase in actual scandals being uncovered by regulators within that country in downturns. The results of the time series data on scandal words presented herein could be compared to the number of white collar criminal cases brought by government and regulatory authorities in the U.S. over time. This would help determine whether criminal cases remain fairly constant in both bull and bear equity markets, in which case we have a journalism problem, or if legal cases and reporting of scandal both increase only in bear equity markets, in which case we have a journalism problem and a regulatory problem.

The content analysis results showed preliminary evidence that, subject to confirmation from more thorough testing of the relationship, investment-related newspaper content is likely to be more optimistic. Not only do investment-related words rise in conjunction with positive news, but also since the early 1990’s investment-related content has been on the rise in all three countries as optimism has increased in the U.S. and Hong Kong. Investment-related content has increased because more households have entered the stock market, thus naturally creating demand for investment-related news stories. But how does the journalism profession fulfill a growing demand for investment-related content without becoming at best a cheerleader for markets and at worst a tool of Wall Street public relations departments? In a 2007 survey of Hong Kong journalists, the single most common response to the question of “What is the most serious problem facing the

industry?” was not self-censorship or low wages, it was “frivolous news.”256 The concern
is that in an effort to maintain good relationships with “expert” sources for financial market
analysis and to keep costs down, journalists tend to take on stories pitched by corporate
public relations departments and avoid tough or controversial topics that require more
research and a bigger budget such as identifying fraudulent practices in the mortgage
lending market. There is no easy answer for how to prevent this outcome, but the first step
ought to be a better understanding of the relationship between investment-related content
and positive news and confirmation that the observed correlation between the two was not
merely a coincidental finding.

Further research
An important next step would be to reproduce the content analysis with a more robust
dictionary for investment-related terms to determine if the relationship still holds. A
significant shortcoming of the present study was the ad hoc manner in which the long and
short-term investment word categories were compiled. While the positive and negative
word categories came from a peer-reviewed study in which the dictionaries were built
using a rigorous methodology,257 the long-term investment, short-term investment, and
scandal categories were compiled based on anecdotal observation and were not vetted by
multiple independent human coders.

256 Hong Kong Journalists Association, “Survey on Press Freedom in Hong Kong,” Public Governance Programme,

These dictionaries should be rebuilt according to these guidelines. Long and short term investment words should be combined into a single category, and the current dictionary improved by adding more words that are used typically in investment-related news. This list of words typically used in investment news could be identified by the following process: first, multiple independent human coders could identify news articles that they deem to be investment-related from a broad sample of financial news. Next, an algorithm could identify those words that appear most frequently in this selection of articles. From this list of words, multiple human coders could identify and eliminate words such as “the” or “and” which would appear most frequently in all articles. Finally, once this dictionary had been developed, its accuracy could be tested on a fresh sample of financial news. Again multiple independent human coders would be needed to determine whether the words in the dictionary were appearing as expected in investment-related news articles. Once a more robust dictionary of investment-related terms was developed in this way, the analysis should be repeated once on larger samples of financial news. If indeed it turned out that the correlation between investment-related and optimistic content held, this finding would have serious implications for the financial news industry.

Next, in order to determine whether the general rise in optimism is related to increases in investment-related news, or if a growing optimism is merely a broader characteristic of all news in the U.S. and Hong Kong, one could conduct a similar analysis on a larger sample of non-business news and compare the results to those presented herein. Such an analysis would also help to determine whether the observed language profiles of the three countries analyzed herein were in fact related to a pro-business or anti-business culture. It is
possible that we are not seeing a pro-business bias in Hong Kong, and the pro-business language is merely symptomatic of a larger optimism in all types of news whether it be news about politics, health issues, human interest stories, or stocks.

Onward

This analysis has made progress toward answering the question of why the U.S. has the highest household investment rate in the world, although the results diverged materially from my initial hypothesis. Of course there are many conditions which have conspired to create a perfect storm for high equity ownership: tax policy, a strong rule of law, and high incomes have all helped the United States become the leader in household equity ownership. But this analysis revealed that a pro-business culture and the favorable business news reporting that comes with it has helped the U.S. become the global leader in household equity ownership. In the process, this analysis also yielded an unexpected result: Hong Kong’s financial news is even more pro-business than the U.S. and household investment is growing faster there. This looks to be yet another example of how emerging markets are catching up to their developed counterparts—and quickly—in innumerable ways. From a household investment perspective, the next emerging economies to watch will be India and China, where over 2 billion people are poised to join the middle classes in an era of relatively easily-accessible global markets and inexpensive online brokerage services. Theoretically, household ownership of equities could grow much more quickly under these circumstances than it did in the U.S. over the last half century. A natural next step for this project will be to measure which emerging markets have the most pro-business
culture to help global investors to determine where household investment is likely to grow fastest.


Employee Benefit Research Institute. “401(k)-Type Plans and Individual Retirement Accounts (IRAs).” *Notes* October 2007, Vol. 28, No. 10


Hatzivassiloglou, Vasileios and Kathleen McKeown. “Predicting the Semantic Orientation of Adjectives.” Proceedings of the 35th Annual Meeting of the Association for


### Negative Words – Loughran McDonald

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USURIOUS
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VANDALISM
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WORSEN
WORSENED
WORSENING
WORST
WORTHLESS
WRONG
WRONGDOING
WRONGFUL
WRONGFULLY

**Negative**

DRAG
PROBLEM*

**Supplement**

NO
DOWN
LESS
AGAINST
SELL*
SELL*
CANT
CANNOT
COSTS
LOST
BAD
BAD
LOW*
QUESTION*
CORRECTION
CORRECTION
LOS*
DECLIN*
DECLIN*
BEAR*
DIFFICULT*
DIFFICULT*
RISK*
POOR
POORLY
CHALLENGE*
RECESSION*
RECESSION*
DROP*
WORS*
PRESSURE*
CONCERN*
CONCERN*
WEAK*
EMERGENCY
SLOW*
FAIL*
FAIL*
DOWNTURN
TURMOIL
DISASTER
UNFORTUNATE
SELL-OFF
PLUMMET*
WOE*

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258 Asterisk denotes inclusion of word iterations for all suffixes following *. I.e., los* would include lose, lost, loser, etc.
**Positive Category – Loughran-McDonald**

ABLE
ABUNDANCE
ABUNDANT
ACCOMPLISH
ACCOMPLISHED
ACCOMPLISHING
ACCOMPLISHMENT
ACCOMPLISHMENTS
ACHIEVE
ACHIEVED
ACHIEVEMENT
ACHIEVEMENTS
ACHIEVES
ACHIEVING
ADEQUATE
ADEQUATELY
ADVANCED
ADVANCEMENT
ADVANCEMENTS
ADVANCES
ADVANCING
ADVANTAGE
ADVANTAGED
ADVANTAGEOUS
ADVANTAGEOUSLY
ADVANTAGES
ALLIANCE
ALLIANCES
APPR
ECIATE
APPRECIATE
APPRECIATED
APPRECIATES
APPRECIATION
ASSURE
ASSURED
ASSURES
ASSURING
ATTAIN
ATTAINED
ATTAINING
ATTAINMENT
ATTAINS
ATTRACTIVE
BEAUTIFUL
BEAUTY
BENEFICIAL
BENEFICIALLY
BENEFIT
BENEFITED
BENEFITING
BENEFITTED
BENEFITTING
BETTER
BOLSTERED
BOOM
BOOST
BOOSTED
BREAKTHROUGH
BREAKTHROUGHS
CHARITABLE
CHARITIES
CHARITY
COLLABORATE
COLLABORATED
COLLABORATING
COLLABORATION
COLLABORATIONS
COLLABORATIVE
COLLABORATOR
COLLABORATORS
COMPLIMENT
COMPLIMENTARY
CONCLUSIVE
CONCLUSIVELY
CONDUCE
CONSTRUCTIVE
CONSTRUCTIVELY
COURTEOUS
CREATIVE
CREATIVITY
DELIGHTED
DEPENDABILITY
DEPENDABLE
DESIRABLE
DESIRED
DESPITE
DESTINED
DILIGENT
DILIGENTLY
DISCOVER
DISCOVERED
DISCOVERIES
DISCOVERING
DISCOVERS
DISCOVERY
DISTINCTION
DISTINCTIONS
DISTINCTIVE
DONATION
DONATIONS
DRAMATIC
DRAMATICALLY
DREAM
EASIER
EASILY
EASY
EFFECTIVE
EFFICIENT
EFFICIENTLY
EMPOWER
EMPOWERED
EMPOWERING
EMPOWERS
ENABLE
ENABLED
ENABLES
ENABLING
ENCOURAGED
ENCOURAGEMENT
ENCOURAGES
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ENJOY
ENJOYABLE
ENJOYED
ENJOYING
ENJOYMENT
ENJOYS
ENTHUSIASM
ENTHUSIATIC
EXCELLENCE
EXCELLENT
EXCEPTIONAL
EXCEPTIONALLY
EXCITED
EXCITEMENT
EXCITING
EXCLUSIVE
EXCLUSIVELY
EXCLUSIVITY
EXEMPLARY
FAVORABLE
FAVORABLY
FRIENDLY
GAIN
GAINING
GREAT
GREATER
GREATEST
GREATLY
HAPPY
HIGHEST
HONOR
HONORABLE
HONORED
HONORING
HONORS
IDEAL
IMPRESSED
IMPRESSIVE
IMPROVE
IMPROVED
IMPROVEMENT
IMPROVEMENTS
IMPROVES
IMPROVING
INFORMATIVE
INNOVATE
INNOVATION
INNOVATIONS
INNOVATIVE
INNOVATOR
INTEGRITY
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INVENTION
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INVENTORS
LEADERSHIP
LEADING
LUCRATIVE
MERITORIOUS
OPPORTUNITIES
OPPORTUNITY
OUTPERFORM
OUTPERFORMED
OUTSTANDING
PERFECT
PERFECTLY
PLEASANT
PLEASED
PLEASURE
POPULAR
POPULARITY
POSITIVE
POSITIVELY
PREEMINENT
PREMIER
PREMIERE
PRESTIGE
PRESTIGIOUS
PROACTIVE
PROFICIENCY
PROFITABILITY
PROFITABLE
PROFITABLY
PROGRESS
PROGRESSED
PROGRESSES
PROGRESSING
REBOUND
REBOUNDED
REGAIN
REGAINED
REWARD

Positive Supplement

UP
GOOD
GROWTH
GROWING
GREW
GROWN
LONG
HIGH*
BUY
BUYING
BEST
HIGHER
TOP*
POSSIB*
STRONG*
STRENGTH
GAIN*
GAIN*
HELP*
INCREAS*
FREE
FREE
PROFIT*
PROFIT*
PROFIT*
POWER
ABLE
RISE*
EASY
POPULAR
BENEFIT*
SUCCESS*
GAIN*
GAIN*
RAISE*
OPPORTUNIT*
BOOM
HOPE*
IMPROV*
POSITIVE
ADVANTAGE*
WIN*
VICTOR*
BULL*
COMFORT*
LUCRATIVE
RALLY
REBOUND

Asterisk denotes inclusion of word iterations for all suffixes following *. I.e., los* would include lose, lost, loser, etc.
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Scandal

CRIMINAL
ACCUS*
ACCUS*
BACKDAT*
BAIL
BATTL*
BATTL*
BRIBE*
BRIBE*
BRIBE*
BUBBLE
CHARGED
CONVICT*
CRIME*
CRIME*
CRIME*
DECEIPT
DECEPTION
DEFRAUD*
EMBEZZL*
EXCESS*
FALSIF*
FRAUD
FRAUDULENT
GREED*
GREED*
GUILT*
GUILT*
INDICT*
INVESTIGATION
JAIL
LAWSUIT
LIE*
MONEY LAUNDERING
PENALT*
PONZI
PRISON
PROSECUT*
PUNISH*
SCAM
SCANDAL*
SCHEME
SENTENCE
STEAL*
STOLE*
THEFT
THIEF
WRONGDOING

FALSE
DECIEV*
FINE*
PENALTY

260 Asterisk denotes inclusion of word iterations for all suffixes following *. I.e., los* would include lose, lost, loser, etc.
Negative Words
French – Loughran McDonald

ABANDON
ABANDONNÉE
RENONCER
ABANDON
ABANDONS
ABANDON
ANORMALES
ANOMALIES
ANORMALEMENT
SUPPRIMER
SUPPRIME
ABROGER
ABRUPTE
ABSENCE
ABSENCES
ABSENT
ABSENTÉISME
ABUS
ABUS
ABUSIVE
ACCIDENT
ACCIDENTELLE
ACCIDENTELLEMENT
ACCIDENTS
ACCUSATION
ACCUSÉ
FRELATÉ
FRELATAGE
ADVERSARIAL
CONTRADICTOIRE
EFFETS
GRIEF
L'ADVERSITÉ
SUITES
CONTRE
AGGRAVÉES
ALIÈNER
ALIÉNATION
ALLEGATION
ALLEGATIONS
ALLEGUENT
ALLÉGUÉE
PRETENDUMENT
ALLEGUE
INVOQUANT
AMBIGUITE
AMBIGU
ENNUYER
GÊNE
ANNULER
ANNULE
ANNULATION
ANOMALOUS
ANTITRUST
CRÉDITS OUVERTS
ARBITRAIRES
ARGUE
SOUTENU
ARGUING
ARGUMENT
ARGUMENTS
ARRESTATION
ARRÊTÉES
ARRESTATIONS
ARTIFICIELLEMENT
AGRESSION
ATTENUATION
ATTRITION
ÉVITER
ÉVITEMENT
ÉVITER
ÉVITE
ÉVITE
RETOUR
BAD
BALK
BAN
FAILLI
FAILLITES
FAILLITE
BANNED
INTERDICTION
BANS
FORCLUSION
BARRIERE
OBSTACLES
BOYCOTT
BOYCOPTS
VIOLATION
VIOLÉE
INFRACTIONS
VIOLATION
BREAK
RÉPARTITION
VENTILATIONS
RUPTURE
SEJOURS
POTS-DE-VIN
CORRUPTION
POTS-DE-VIN
BROKEN
CHARGE
CHARGE
SURCHARGER
CHARGES
CHARGE
BRÛLÉ
CALAMITY
CANCEL
ANNULÉ
ANNULATION
ANNULATION
ANNULATIONS
CANCELLED
ANNULATION
ANNULÉ
NÉGLIGENCE
CASUALTIES
CASUALTY
CATASTROPHE
CATASTROPHES
CATASTROPHIQUE
ATTENTION
MISE EN GARDE
A MIS EN GARDE
PRÉCAUTIONS
PRUDENT
CEASE
CESSE
CESSATION
CENSURE
CENSURES
TOURNER
REVENDICATION
CLAIMS
CLOSED
CLOSEOUT
FERMETURE
FERMETURES
FERMETURE
CLOSURES
CONTRAINdre
COERCITION
COERCIVE
EFFONDREMENT
COLLAPSED
COLLISION
COLLISIONS
COLLUSION
LUTTE CONTRE
PLAINdre
COMPORTEMENT
RÉCLAMATIONS
PLAINE
PLAINTES
COMPLIQUER
COMPLIQUÉ
COMPLIQUE
COMPLIQUER
COMPLICATIONS
COMPROMIS
FACILITER
GRAVES
DÉTOURNEMENT DE FONDS
ATTEINTE
EMPIÉTEMENT
EMPIÉTEMENTS
ENCORBRER
POURVU
L’ENCORBREMENT
ENCORBRE
ENCUMBANCE
GRÈVEMENTS
METTRE EN PERIL
ENDANGERED
ENJOINDRE
ENJOINT
ENJOIGNANT
ENJOINT
ENURE
ÉRODER
ÉRODÉ
EROSION
ERRATIQUE
ERRONEE
PAR ERREUR
ERREUR
ERREURS
INTENSIFICATION
ESCALADE
ESCALADE
L’ESCALADE
ESCALADE
ESCALADE
EVICT
EXPULSÉ
ÉVIOCTION
EXACERBER
EXACERBÉ
EXCEPTIONS
EXCESSIVE
EXCESSIFS
DISCULPATION
DÉCHARGE
DISCULPER
EXONÉRATION
EXPOSER
EXPOSED
EXPOSE
EXPOSITION
EXPROPRIATION
EXPULSION
FAIL
MANQUE
OMETTANT
NE
FAILURE

FAILURES
FAUX
FAUSSEMENT
FALSIFICATION
FAULT
DÉFAUTS
DÉFAUTS
FEAR
CRAINT
FELONY
FICTIF
FINE
RECOIT UNE AMENDE
AMENDES
FIRED
CUISSON
VICES
INTERDIT
FORCE
FORCE
FORCES
FORCÉ
FORCER
ÉVINCER
FERMÉ
FORECLOSURES
VERROUILLER
FORECLOSURE
FORECLOSURES
RENONCER
AVANCE
FORFAIT
ACQUISE
PERDRE
PERD
DECHEANCE
FRAUDE
FRAUDULEUX
FRAUDULEUSEMENT
FRIVOLE
FRUSTRER
ECHEC
FRUSTRATION
GRIEFS
DOLEANCES
GROSSIÈREMENT
COUPABLE
ENTRAVER
ENTRAVE
HARCELEMENT
HARM
NUI
NUCIF
NUIRE
HARMS
SEVERES

DANGER
DANGEREUX
DANGERS
ENTRAYER
RESTREINS
ENTRAVANT
PERTURBATION
HOSTILE
HOSTILITES
HOSTILITÉ
HURT
REPOS
INOCUPÉES
LA MARCHE AU RALENTI
ILL
ILLEGAL
ILLEGALITE
DÉSÉQUILIBRE
DÉSÉQUILIBRES
IMMATURE
IMMORAL
ATTEINTE
IMPARED
ATTEINTE
DÉPRÉCIATION
IMPAIRMENTS
ATTEINTE
ENTRAVER
FREINE
ENTRAVE
OBSTACLES
ENTRAVER
IMPENDING
IMPÉRATIF
IMPERFECTIONS
INADMISSIBILITE
IMPLIQUÉS
INFLIGER
IMPOSE
INFLIGEANT
IMPOSSIBILITE
IMPOSSIBLE
IMPRATICABLE
EMPRISONNEMENT
ABUSIVE
IRREGULARITÉS
INCONVENANCE
INCAPACITÉ
INACCESSIBLE
INEXACTITUDES
INEXACTITUDE
INEXACTES
INACTION
INSUFFISANCES
| MORTATORE | MORATOIRE | MORATOIRES | NEGATIVE | NEGATIVEMENT | NÉGLIGENCE | NÉGLIGENCE | NÉGLIGENCE | NONCOMPETITIVE | NON | NON CONFORMES | NON-CONFORMITÉ | NON-DIVULGATION | NON | NON | NONPERFORMING | NON PRODUCTIVES | OBJECTIONS | OBJECTION | OBJECTION | RÉPRÉHENSIBLE | OBJECTIONS | OBSCENE | OBSCÉNITÉ | OBSOLESCENCE | OBSOLETE | OBSTACLE | OBSTACLES | INCriminée | OMission | OMIT | OMET | OMIS | OPPORTUNISTES | OPPORTUNISTE | OPposer | OPPOSES | OPPOSES | OPposition | OUVERTURE | SURCHARGER | SURCAPACITÉ | SURCHARGE | SURCHARGES | OVerCOME | RETARD | INDUMENT | SURPRODUCTION | DÉPASSEMENT | DÉPASSEMENT | SURESTIMÉ | SURESTIMATION | SURPLUS | OUVERTEMENT | PÉNALISÉ | SANCTIONS | SANCTION | PARJURE | PIQUETAGE | DEMANDERESSE | DEMANDERESSES | PLEA | EXCIPER | INVOQUE | INVOQUANT | MÉMOIRES | MOYENS | PLAIDÉ | PAUVRES | PEU | POSES | POSANT | SURSESEOR | REPORTÉ | AJOURNEMENT | AJOURNEMENTS | LE REPORT DE | PRECIPITE | PREJUDICE | DESAVANTAGE | PRÉJUGÉS | PRÉMATURE | PRÉMATUREMENT | PRESSAGE | PRETRIAL | PROBLÉMATIQUE | PROBLEMES | PRONE | POURSIVRE | POURSUITES | DES POURSUITES | POURSUITES | POURSUITES | POURSUITES | PROTEST | PROTESTE | PROTESTANT | RECLAMATIONS | PROLONGE | OBJET | PRÉTENDUE | PRÉTENDUMENT | ET VISANT | OBJECTIF | QUESTION | DISCUITABLE | CAUSE | QUESTIONNEMENT | QUESTIONS | QUIT | RACKETTEUR | RACKET | RAPPELLENT | RAPPELE | RECESSION | RÉCESSION | RÉCESSIONS | RECKLESS | TÉMÉRAIREMENT | IMPRUDENCE | RECALCULÉES | REDRESS | REJET | REJETS | REJET | REJET | REJET | REJET | REJET | REJET | REJET | REJET | REJET | REJET | RESILIATION | DÉMISSIONNER | DEMISSION | DEMISSIONS | DÉMISSIONNE | DÉMISSIONNEN | DÉMISSION | REVOKE | ABROGATION | ABROGATION | RISQUÉ | RISQUÉS | SABOTAGE | SECRET | SECRET | SEIZE | SAISSIES | SEIZURE | GRAVE | GRAVE | SEVER | SEVERE | SEVERE | ROMPU |
| STRICITEMENT | MENACE | NON |
| SEPARER      | MENACES | NON |
| SEVERITY     | TOLÉRER | INVOLONTAIRE |
| CALOMNIE     | TOLERÉES | INVOLONTAIREMENT |
| SLOW         | TORNADO  | INJUSTE |
| RALENTISSEMENT | TORNADES  | INJUSTEMENT |
| RALENTISSEMENTS | TORTUEUX | ILLEGAL |
| RALENTISSEMENT | TRAGIQUE | ILLEGALEMENT |
| SLOWER       | TRAUMATIQUES | INHOFFENDBAHL |
| PLUS LENT    | TROUBLE  | INOFFENSIVE |
| FREINER      | TROUBLED | INOFFENSIVEM |
| LENTEMENT    | TROUBLES | INOFFENSIVE |
| ANÉMIQUE     | PU      | INOFFENSIVEM |
| SPILL        | INACCEPTABLES | IMPRÉVUES |
| DÉVERSEMENT  | IMPRÉVUES | IMPRÉVISIBILITÉ |
| DÉVERSEMENT  | UNAPPROVED | IMPRODUCTIVES |
| RÉPANDRE     | PEU ATTIRANT | NON RENTABLES |
| DÉVERSEMENTS | NON AUTORISÉ | NON QUALIFI |
| STOLEN       | INDISPONIBILITE | DÉRAISONNABLE |
| GREVE        | INDISPONIBLE | DÉRAISONNABLE |
| ARRÊTS       | INÉVITABLES | IRRÉCUPÉRABLE |
| STOPPED      | IGNORER  | CAUTION |
| ARRÊT        | INACHEVÉE | NON |
| BUTÉES       | MAÎTRISER | TROUBLES |
| STRESS       | NON      | INSALUBRE |
| SOULIGNE     | UNCORRECTED | INSATISFAISANTS |
| SOULIGNE     | DÉCOUVRIR | INSATISFAIT |
| SOULIGNANT   | UNCOVERED | MIXTURE PEU |
| RIGOUREUSES  | SOUS-ESTIMER | INVENDUES |
| SUBPOENA     | SAPER    | TORT |
| ASSIGNATIONS | SOUS-PAYÉS | INSTABLES |
| INFÉRIEURE   | INSUFFISANTS | SUCCOMBE |
| SUBI         | INSUFFISANTS | EN VAIN |
| SOUFFRANCE   | SOUS-ESTIMÉS | INAPTITUDE |
| SOUFFRE      | EUPHÉMISME | INAPTE |
| RENONCATION  | INDÉSIRABLES | JE NE SAIS PAS |
| ABANDONNES   | INAPERCUES | INSOUPÇONNÉE |
| S'ABANDONNER | INDÉTERMINÉE | INOPPORTUNE |
| CESSIONS     | UNDISCLOSED | HORUS D'USAGE |
| SUSPECT      | UNDISCOVERED | INSOLITE |
| SOUPÇONNÉS   | INDU     | EXCEPTIONELLEMENT |
| SUSPECTS     | INDUMENT | INDESIRABLES |
| SUSPENSION   | RENTABLES | INJUSTIFIÉE |
| SUSPENDU     | RENTABLE  | REFUSANT |
| SUSPENSION   | CONTRAIRE À L'ÉTIQUE | LE REFUS |
| SUSPEND      | UNEXPECTED | URGENCE |
| SUSPENSION   | DE MANIÈRE INATTENDE | URGENT |
| SUSPENSIONS  | CONCURRENCE DELOYALE | USURAIRES |
| SUSPECT      | INJUSTEMENT | L'USURE |
| TERRORISME   | DÉFAVORABLES | VANDALISME |
| TERRORISME   | DE FAÇON DÉFAVORABLE | VERDICT |
| TÉMOIGNER    | IMPROPRÉS | VERDICTS |
| MENACE       | IMPRÉVISIBLE | ENFREINDRE |
| MENACENT     | IMPREVUES  | VIOLE |
| MENACE       | MALHEUREUSEMENT | VIOLE |
| MENACER      | UNFULFILLED | ENFREINT |
VIOLATION
VIOLATIONS
LES CONTREVENANTS
VIOLENCE
VIOLENT
VOLATILE
VOLATILITÉ
VULNERABILITES
VULNÉRABILITÉ
VULNERABLE
WARN
AVERTISSEMENT
MISES EN GARDE
WEAK
FAIBLIR
AFFAIBLI
AFFAIBLISSEMENT
AFFAIBLIT
FAIBLESSE
FAIBLE
FAIBLESSE
FAIBLESSES
VOLONTAIREMENT
PIRE
EMPIRER
AGGRAVEES
AGGRAVATION
PIRES
WORTHLESS
FAUX
INCONDUITE
FAUTE
TORT

Negative Supplement French\textsuperscript{261}

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\textsuperscript{261} Asterisk denotes inclusion of word iterations for all suffixes following * . I.e., los* would include lose, lost, loser, etc.
| FORTE | BOOM | BOOST | BOOSTED | BREAKTHROUGH | PERCÉES | CHARITABLE | ORGANISMES DE BIENFAISANCE | CHARITY | COLLABORER | COOPERER | COLLABORATION | COLLABORATION | COLLABORATIONS | COLLABORATIVE | COLLABORATEUR | COLLABORATEURS | COMPLIMENT | COMPLEMENTAIRES | CONCLUSIVE | CONCLUANTE | FAVORABLE | CONSTRUCTIVE | CONSTRUCTIVE | COURTOIS | CREATIVE | CRÉATIVITÉ | RAVI | DEPENDABILITY | FIABILITÉ | DESIRABLE | SOUHAITEE | MALGRE | DESTINÉS | DILIGENT | AVEC DILIGENCE | DÉCOUVEREZ | DÉCOUVERTE | DÉCOUVERTES | DECOUVIRIR | DÉCOUVRE | DÉCOUVERTE | DISTINCTION | DISTINCTIONS | DISTINCTIVE | DON | DONATIONS | DRAMATIC | SPECTACULAIRE | DREAM | FACILE | FACILEMENT | EASY | EFFECTIVE | EFFICACE | IMPRESSIVE | AMÉLIORER | AMÉLIORÉ | AMÉLIORATION | IMPROVES | AMÉLIORATION | INFORMATIF | INNOVER | INNOVATION | INNOVATIONS | INNOVATIVE | INNOVATEUR | INTEGRITÉ | INVENT | INVENTE | INVENTION | INVENTIONS | INVENTOR | INVENTEURS | LEADERSHIP | LEAD | LUCRATIF | MÉRITOIRE | OPPORTUNITES | OCCASION | SURPERFORMANCE | SURCLASSÉ | ENCOURS | PERFECT | PARFAITEMENT | PLEASANT | HEUREUX | PLAISANCE | POPULAIRES | POPULARITE | POSITIVE | POSITIVE | PRÉÉMINENT | PREMIER MINISTRE | PREMIERE | PRESTIGE | PRESTIGIEUX | PROACTIVE | APTITUDES | RENTABILITE | RENTABLE | PROFITABLY | PROGRESS | PROGRESSÉ | PROGRÈS | PROGRESSER | REBOND | SURSAUT | REGAIN | REGAINED |
REWARD
RECOMPENSEE
RÉCOMPENSES
SATISFACTION
SATISFAISANTE
SATISFAIT
SATISFAIRE
SATISFAISANT
SMOOTH
DOUCEUR
STABILITÉ
STABILISATION
STABILISER
STABILISÉS
STABILISATION
STABLE
RESISTANCE
RENFORCER
RENNEMENT
RENFORCEMENT
RENFORCE
POINTS FORTS
SUCCED
SUCCÉDÉ
SUCCESION
SUCCOMBENT
SUCCÈS
SUCCÉS
AVEC SUCCES
SURPASS
DÉPASSÉS
MIEUX
TRANSPARENCE
ENORME
INÉGALÉE
SANS PRÉCÉDENT
REPRISE
VERSATILE
VERSATILITÉ
VIBRANT
Digne

Positive Supplement
French

REDEMARR*
REMONTE*
SAIN
CONFIENT
EFFICACE

EN HAU*
BIEN
CRIOSSANCE
GRANDIR
GRANDI
AUGMENT*
ACHETEUR
HAUT
ACHET*
ACHAT
MEILLEUR
SUPERIEUR
HAUT
POSSIB*
FORT*
FORCE
BENEFICES
PRODUITS
AID*
AUGMENT*
GRATUITY
LIBRE
PROFIT*
RENTABLES
BENEFICES
PUISSANCE
CAPABLE
SE LEVE*
SIMPLE
POPULAIRE
AVANTAGE*
SUCCESS*
GAIN*
PLUS-VALUE*
ELEVE*
OCCASION*
LEADER
BOOM
ESPER*
AMELIOR*
POSITI*
AVANTAGE*
GAGN*
VICTOIRE
HAUSSIER
CONFORT*
LUCRATIVE

Asterisk denotes inclusion of word iterations for all suffixes following *.
I.e., los* would include lose, lost, loser, etc.
### Long-Term Investment – French

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<thead>
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### Short-Term Investment – French

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### Scandal - French

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