

## Long-term investment, the cost of capital and the dividend and buyback puzzle

by  
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The paper argues that interest rates are at extremely low levels to support banks, and the search for yield has pushed the liquidity driven speculative bubble from real estate, derivatives and structured products markets into the corporate debt market. Equities have rallied strongly too. This asset cycle is certainly helping banks reduce hidden losses on illiquid securities and could also help reduce the cost of equity. But for this to occur at current bond yields would require an unrealistic bubble in equities. Markets are assuming that this transition from low to higher rates (more in line with nominal GDP) can be handled smoothly by policy makers, when in fact this may not be so. Extreme volatility would risk new financial fragility problems. The paper presents a panel model using more than 4,000 global companies and shows that the Capex decision in general depend on the cost of equity, the accelerator and uncertainty, whereas buybacks are driven mainly by the gap between the cost of equity and debt. Right now the incentive structure implied by very low interest rates, which may be sustained for a long time, together with tax incentives, works directly against long-term investment. Debt finance is cheap, while the cost of equity capital needed for risky long-term investment is still high. This combination provides a direct incentive for borrowing to carry out buybacks (de-equitisation). Noting that weak investment reduces potential GDP, the paper makes some policy suggestions.

JEL Classification: G15, G32, G28, E52.

Keywords: long-term investment, interest rates, de-equitisation, cost of capital, dividend and buybacks, monetary policy.

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## I. Introduction

The US Federal Reserve, the ECB, and the Bank of England have conducted a policy of low rates and/or unconventional policies of buying out along the yield curve to reduce the term premium. Most recently, announcements from the Bank of Japan suggest that they too will follow suit, and this has seen a sharp fall in the yen. A weakening yen, and a rising risk appetite for yield in Asia, also risks seeing quantitative easing spread beyond OECD economies to Asia. These policies are expressly designed to help banks recover and deal with bad loans and to help the economy by encouraging risk taking: to increase the relative attractiveness of corporate debt and equities, both of which may be used to finance long-term investment. Portfolio investors have indeed taken more risk, forced out of low-yield low-risk assets in the search for higher yields in equities and corporate bond markets. This has led to an extraordinary rally in higher yielding corporate bonds, and the equity market too has rallied strongly. But so far this increased portfolio risk taking has not translated into a surge of capital spending at the company level. The US economy is picking up only moderately, and unemployment remains stuck at high levels. The traditional job-producing cycle that is created by new net investment has not materialised as in past cycles. In Europe, the recession seems to have gathered pace in early 2013, banks continue to cut lending and there is certainly no sign of any pick-up in business investment.

At the same time corporate borrowing has been strong, equity issuance weak, and companies have frequently decided to return cash flow to shareholders in the form of dividends and buybacks. The aim of this study is to explore this puzzle in more detail. It does so by using microeconomic data on cash flow, capital expenditure, dividends, and buyback decisions of thousands of observations from non-financial companies included in the MSCI global stock index. Section II looks at some of the macroeconomic indicators of the distortionary responses to the financial crisis that may be distorting investment decisions. Section III then looks at some of the microeconomic characteristics of the data and the capital expenditure, dividend and buyback outcomes. It hypothesises that the high level of uncertainty, the low cost of corporate debt and the high cost of equity funding is favouring dividends and buybacks at the expense of investment. Panel regression techniques are then used to explore whether this hypothesis is supported by the data in section IV. Finally, some concluding remarks are made in section V on the likely causes of the failure of policy to translate into better economic performance, and what areas policy makers might look to improve this situation.

## II. Macroeconomic Influences on the Investment Incentives

The effect of unconventional monetary policy, including the compression of term premium and risk premiums by buying out along the curve is shown for the United States in Figure 1. The search for yield on the part of investors has led to a rally in non-Government paper, as the risk free sovereign yield has declined to record low levels (the USA 10-year bond rate is below 2% in early April 2013). While the financial crisis began with excess leverage on the part of banks and households, currently being unwound in a massive deleveraging, that bubble is being transferred to the securities markets and the corporate sector, which is now issuing debt to lock-in low rates. In Asia as well, corporate issuance is in a bubble phase, with many low quality and even unrated issues being many times over-subscribed.<sup>1</sup>

***Extreme low interest rates do not provide an incentive to invest<sup>2</sup>***

With respect to bond financing, the interest rate on corporate debt (  $i$  ) must be consistent with the bond investor's required return (  $r$  ) given the personal tax rate (  $t$  ):

$$r = i * (1 - t) \quad (1)$$

The cost of equity (  $k$  ) to the company is the dividend yield (  $d$  ) plus the ex-dividend nominal return for a dollar invested (  $g$  ):

$$k = d + g \quad (2)$$

For the equity investor the cost of the company retaining that dollar for investment is reduced by the dividend tax (  $td$  ) not paid on the dollar (not distributed) but evaluated at the capital gains tax (  $tg$  ) that will be paid (for simplicity assumed to be paid on an accrual basis), so the cost of a dollar invested for the shareholder is<sup>3</sup>:

$$c = \frac{1 - td}{1 - tg} \quad (3)$$

The dividend and growth (ex-dividend nominal return) must be consistent with the equity investor's required return on the retained dollar invested  $\rho$ : i.e. the after tax dividend paid divided by cost of that retained dollar  $c$ . plus the growth arising from the investment taxed at the capital gains tax rate:

$$\rho = \frac{(1 - td) * d}{c} + (1 - tg) * g \quad (4)$$

And substituting for  $c$ :

$$\rho = (1 - tg) * (d + g) \quad (5)$$

Finally, capital market arbitrage requires that the investor's return on both debt (the investor can invest in the risk free asset) and equity, adjusted for the equity risk premium  $\sigma$ , must be equal,

$$r = \rho - \sigma \quad (6)$$

So that substituting for  $\rho$  and  $r$ :

$$i * (1 - t) = (1 - tg) * k - \sigma \quad (7)$$

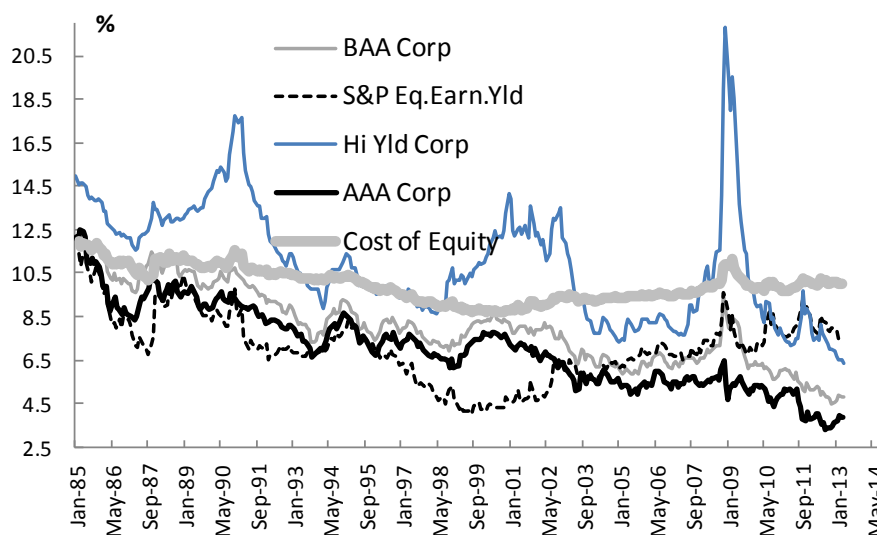
Notice that dividend taxes drop out, implying they are neutral for a dollar of earnings retained for investment. Taxes on dividends are taxes on profits generated and distributed; only taxes on the dollar invested is relevant in the case of a dollar retained for investment. The cost of equity capital for a retained earnings investment is:

$$k = \frac{i * (1 - t)}{1 - tg} + \frac{\sigma}{1 - tg} \quad (8)$$

Figure 1 shows an empirical calculation of the cost of equity  $k$ .<sup>4</sup> Since 2000, the US cost of equity has drifted upwards from 8-3/4%, spiking at 11-1/4% at the end of 2008, and currently around 10%. This occurred at the same time that the cost of corporate debt trended downwards for the past two decades in one of the greatest bull markets in fixed income of all time, so the cost of debt-financed investment is now very low. The Moody's AAA US corporate bond average is sitting at 3.9% currently, from 7.75 at the start

of 2000. The BAA corporate bond rate fell from 8.3% in 2000 to 4.9% at present, and the Merrill Lynch-BoA below-investment grade high yield average index fell from 11% to 6.4%. For the first time in history, the high-yield bond in the USA is less than the earnings yield on equities in the S&P500. The wedge between the cost of debt and the cost of equity has widened sharply since 2000, i.e. the risk premium  $\sigma$  has risen sharply. This has greatly increasing the incentive to issue debt and retire equity.

**Figure 1: The US Bond Bubble and the Incentive for De-equitisation**



Source: Datastream, OECD.

The cost of a dollar of debt to the firm is simply  $(1 + cr)(1 - tc)$ , where  $cr$  is the credit risk premium. The equity risk premium is:

$$\sigma = (d + g) * (1 - tg) - i * (1 - t) \quad (9)$$

Table 1 shows a hypothetical example of some of the sheer extent of the incentive to do buybacks. In the first column of Table 1 the risk premium for something like the current situation is 6.5%: assuming a normal earning growth of around 6%, a dividend yield of 3%, an extremely low risk free rate of 2%, a 15% capital gains tax and a 40% personal rate. In the second column, if the bond market returned to a more normal level in line with nominal GDP of 4.5%, the risk premium could fall to 5%, without any impact on the cost of capital at 9%. In the third column, with bonds at 2%, there is an enormous incentive to carry out share buybacks to boost share prices and returns to investors and, ultimately, to reduce the cost of retained earnings for investment. In this example, the share price rally needed to return the risk premium to the normal level of 5% would be 240%, an extreme bubble on any criteria. This would have the advantage of reducing the cost of capital, but at the cost of financial fragility concerns arising out of the bubble (excess leverage) and of a sharp reversal in equity prices when interest rates did rise. Such exuberance could be avoided by raising taxes (loose monetary policy plus tight fiscal), as shown in the fourth column, to keep the risk premium low alongside low interest rates. But this seems hardly sensible, as it raises the cost of equity and works against capital spending.

The current policy of extreme low interest rates does not provide an incentive to borrow to invest. The company can retain earnings, invest them at the risk free rate, and drive up the share price to the point where the risk premium is normalized. At this point—provided the low rate of interest is sustainable—the firm would invest again to grow earnings and share prices in line with trend growth. From the investors’

point of view, the buyback strategy has the added advantage of capital gains tax deferral for the investor. The above equations and example are based on the assumption of the taxation of accruals, but taxes are typically collected when capital gains are realized. The boosting of share prices does not incur taxation until the shares are actually sold.

If the extremely low bond rate is not sustainable, this strategy to reflate the economy is flawed and carries with it new financial risks: the improvement in the values of structured products, margin finance products, ETFs, bonds and equities will only help banks, investors and the economy for a temporary period of time. The reversal of bond yields will affect all of these assets in a negative way.

**Table1: Hypothetical Examples of the Risk Premium, Cost of Equity and Taxes**

Variables	Current	With equil bond	With buy back rally	Raise cap. gains tax
Tax rate				
Personal (t)	0.400	0.400	0.400	0.400
Capital gains (tg)	0.150	0.150	0.150	0.310
Corporate (tc)	0.300	0.300	0.300	0.300
Perpetual earnings growth	0.060	0.060	0.060	0.060
Risk free interest rate (i)	0.020	0.045	0.020	0.020
Credit risk premium (crp)	0.022	0.022	0.022	0.022
Corporate rate after company tax	0.029	0.047	0.029	0.029
Share price par value 1.0	1.000	1.000	2.429	1.000
Dividend cents per 1 dollar	0.030	0.030	0.030	0.030
Dividend yield (d)	0.030	0.030	0.012	0.030
Cost of capital (k)	0.090	0.090	0.072	0.090
Equity Risk premium	0.065	0.050	0.050	0.050

Source: OECD

### *Company buybacks and borrowing trends in the global economy*

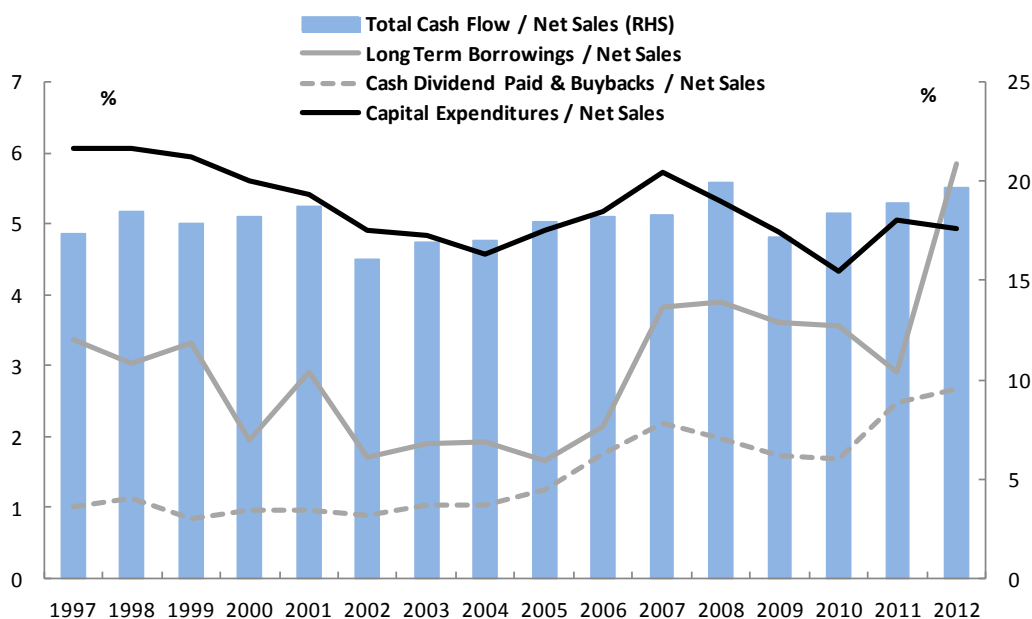
#### *The MSCI companies and the USA*

Figure 2 shows cash flow on the right hand vertical axis, and on the left hand side capital expenditure, long-term borrowing and the sum of dividends and buybacks, all expressed as share of net sales, for the 4981 non-financial companies in the global MSCI stock index. The median firm values are shown. These key outcomes of the board room decision show the following median characteristics:

- Capital expenditure in the MSCI companies fell from 6% of sales in 1997 to around 4.5% 2 years into the crisis, before recovering slightly to 5% by 2012.
- From 2005 dividends and buybacks rose from around 1% of sales to 2-3/4% in 2012. In contrast to investment, borrowing rose from 1-3/4% of sales in 2005, accelerating to 5-3/4% of sales in the latest year 2012.

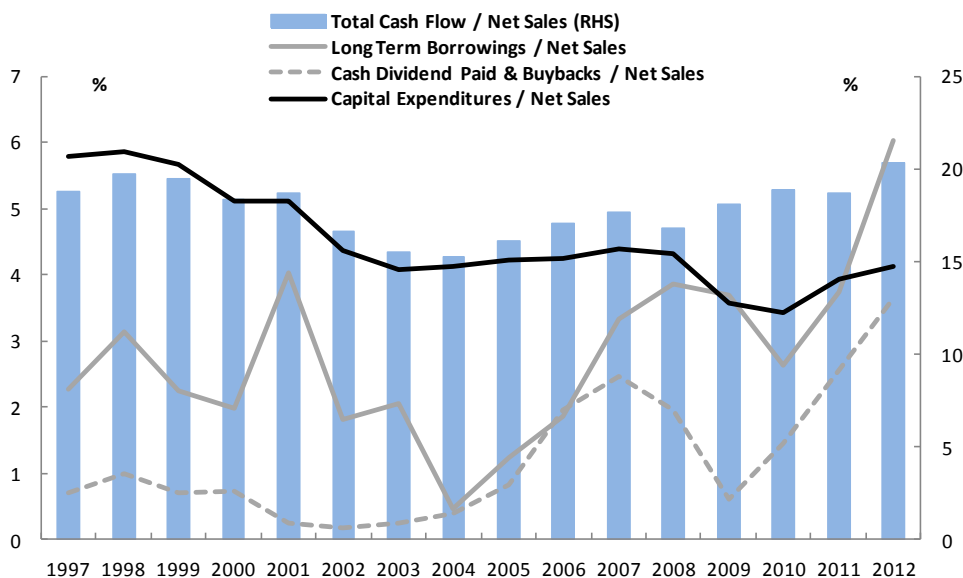
Figure 3 shows the same variables for those US companies in the MSCI global index.

**Figure 2: MSCI Companies, Cash, Borrowing, Capital Expenditure and Buybacks**



Source: Bloomberg, OECD

**Figure 3: US Companies, Cash, Borrowing, Capital Expenditure and Buybacks**



Source: Bloomberg, OECD

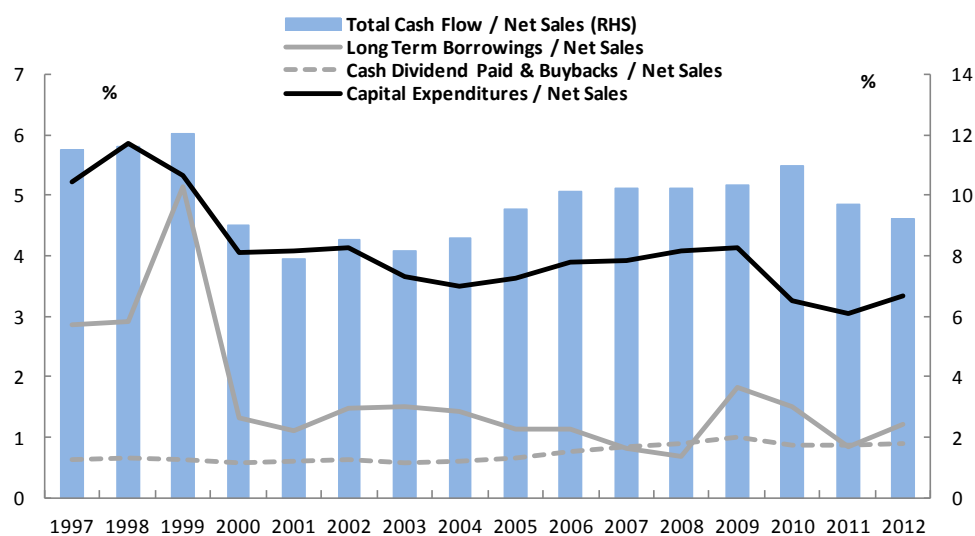
Consistent with the price bubble in corporate debt markets, shown in Figure 1, US corporate borrowing has accelerated strongly since 2004. From 0.5% of sales in 2004, it rose to 4% of sales in 2007, dropped back to 2-3/4% in the 2 years following the crisis and, responding to the search for yield, rose to 6% of sales in 2012. In contrast to this, US companies have seen investment in a trend decline as a percentage of sales since 1997, with only a modest pick up along with corporate cash flow in 2011 and 2012.

### The case of Japan

The case of Japan in Figure 4 shows a very weak picture of investment—which has essentially halved as a share of sales since 1997. Cash flow is very low compared to international peers, only 9% of sales in 2012 compared to 20% for the USA. While the effects of the business cycle are evident, the unusual pattern of corporate behavior in Japan highlights a number of structural factors that other countries should take note of:

- Decades of low interest rates will not stimulate private investment following a period of chronic over investment, excessive borrowing and banking crises in the 1980s and 1990's.
- The keiretsu structure which includes cash flow sharing, while reducing idiosyncratic risk at the firm level, increases the correlation of firms in respect to market and global risks.<sup>5</sup>
- External forms of finance are weak in bank dependent industrial groups. When banking crises arise, investment is directly constrained. The failure to deal with the bad loan problems in banks, keeping zombie companies alive instead of cutting them off has contributed to the poor investment situation. The hope that banks would recover via operating profits and gradual write-offs—implying regulatory forbearance—has not been a successful strategy.

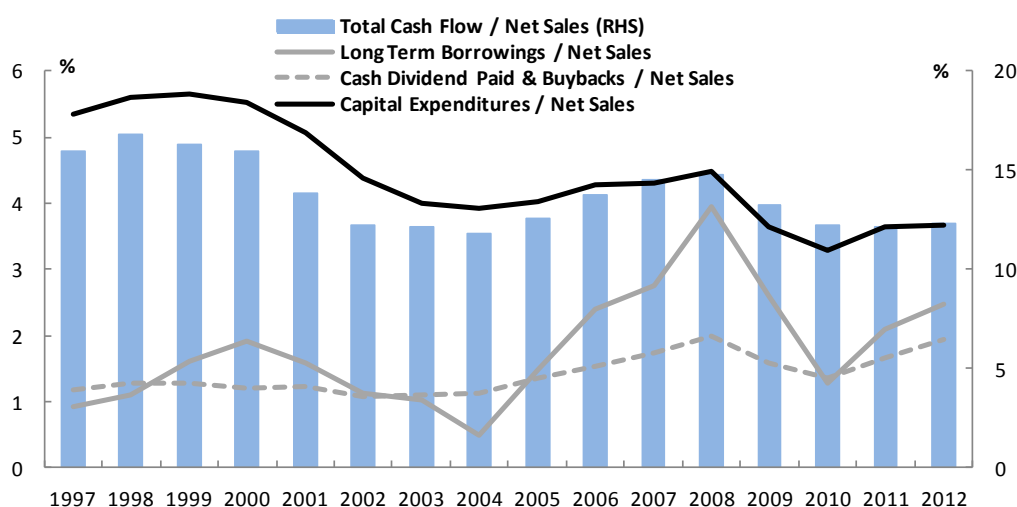
**Figure 4: Japanese Companies, Cash, Borrowing, Capital Expenditure and Buybacks**



Source: Bloomberg, OECD

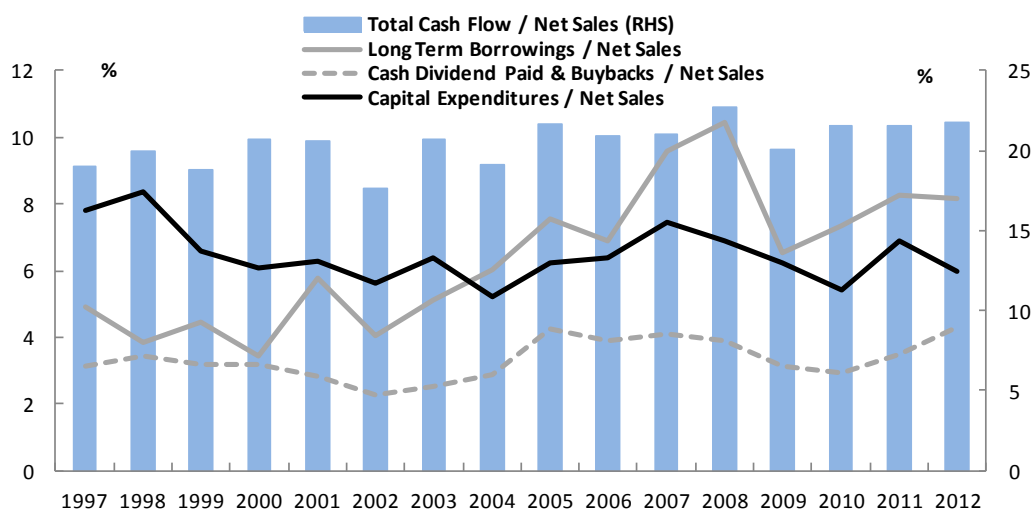
### Europe

Europe, while more dependent on banks than the USA, does have a developed corporate bond market. Cash flow is a little stronger overall than for Japan, but less than for the United States. There is a strong correlation between cash flow and capital expenditure, and the fall in both following the tech bust in the early 2000's is notable. Subsequently, both cash flow and long-term borrowing picked up from 2004 until the eve of the financial crisis. Dividends and buybacks rose during this period. Subsequently, borrowing fell sharply between 2008 and 2010, as did buybacks, cash flow and investment. Investment of companies has fallen as a share of net sales from 5-3/4% in the late 1990's to 3-3/4% of sales by 2012.

**Figure 5: European Companies: Cash, Borrowing, Capital Expenditure and Buybacks**

Source: Bloomberg, OECD. This includes the UK and Switzerland.

### Developed Asia

**Figure 6: Developed Asia: Cash, Borrowing, Capital Expenditure and Buybacks**

Source: Bloomberg, OECD. This includes: Australia, New Zealand, Hong Kong and Singapore.

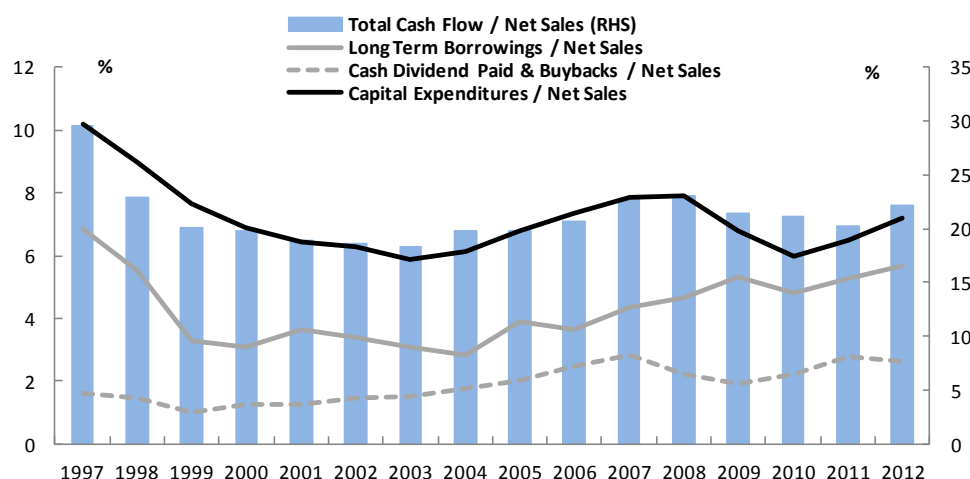
This group, which includes Hong Kong, Singapore, Australia and New Zealand, is shown in Figure 6. It is notable that investment is overall higher, within the range of 6-8% of sales (versus 3-1/2% to 6% range in the advanced countries) and it has shown no sign of any trend decline. Long-term borrowing picked up markedly since 2002, rising from 4% of sales in 2000 to over 10% in 2008, and there is a clear correlation with both capital expenditure and buybacks since the mid 2000's. Cash flow is more robust than in the other developed countries and regions, at a stable 20% of sales (versus 15% to 20% in the USA, 12%-16% in Europe and 10%-15% in Japan).



### *The Emerging Market Countries*

The emerging countries exhibit a very close correlation between cash flow and investment. This group consists mainly of the BRICS, Korea, Taiwan, and some smaller countries. Long-term borrowing in debt markets is relatively small, collapsing after the Asia crisis from 7% of sales in 1997 to 3-1/2% in 2000. Subsequently, there has been a slow recovery back to around 6% of sales in 2012. Buybacks have picked up somewhat, but to a modest level of 2-1/2% in 2007 and 2012.

**Figure 7: Emerging: Cash, Borrowing, Capital Expenditure and Buybacks**



Source: Bloomberg, OECD. This includes the BRICS, Taiwan, Korea, Mexico.

### *Summary*

In sum, the buybacks and borrowing trend is a phenomenon mainly in North America and Europe. Japan shows very low cash flow and investment is in a trend decline. Developed Asia has the strongest investment with long-term borrowing playing a role in investment, with only moderate buybacks. Cash flow and moderate borrowing drives the investment in emerging countries.

## **IV. Determinants of Long Term Investment**

The board room decisions concerning capital expenditure, dividends and buybacks are complex, involving the cost of borrowing, the cost of equity, tax and risk premium issues. To investigate the determinants of firms' (excluding financials) long-term investment and cash returned to shareholders, two fairly simple independent equations are estimated, incorporating microeconomic and macroeconomic variables<sup>6</sup>. In the investment equation, the dependent variable is the share of capital expenditures in firms' total sales (CAPEX\_Sales). In the dividends-buybacks equation, the dependent variable is the share of cash dividends paid plus cash spent on buybacks in the firm's total sales (DivBB\_Sales).

### *The explanatory variables*

For the CAPEX\_Sales equation, the explanatory variables are those referred to in section III:

In the above discussion, the difference between the cost of equity based on retained earnings and the cost of debt was argued to be a major determinant of in the incentive to engage in both long-term borrowing and share buyback strategies—currently at quite an extreme point in the USA and Europe.

- The cost of equity ( $k$ ) which is measured as the dividend yield for the national benchmark plus the trend rate of growth of earnings.<sup>7</sup> A higher cost of equity discourages firms to retain earnings for the purpose of capital expenditures. CAPEX\_Sales is expected to have a negative relationship with this variable.
- The cost of debt ( $i_{AAA}$ ) is the yield of AAA-rating corporate bond index of the country location of the company. A higher bond yield discourages firms from borrowing to increase their capital expenditures. CAPEX\_Sales is expected to have a negative relationship with this variable.

In the above discussion, buybacks and borrowing trends are quite different in the USA, Europe and Japan compared to emerging countries. Computing the cost of equity and measuring the bond yield at the country level controls for possible heterogeneity across countries in the regressions.

The accelerator effect on private long-term investment caused by economic growth is also a key determinant of long-term investment.

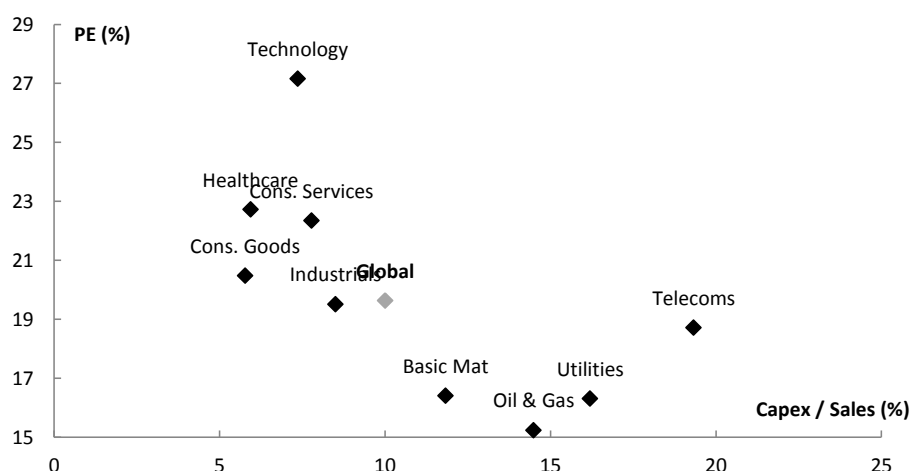
- Economic growth is measured by GDP growth in the home country (GDP). It is the annual per cent change in gross domestic product of the country location of the firms. The CAPEX\_Sales is expected to have a positive relationship with this variable. Table 2 divides all of the companies into quartiles, with the lowest investment/sales group in the top panel, and the highest in the bottom. There is a clear positive relationship between GDP growth and the propensity to invest.

Finally, uncertainty is measured by the firm's own stock price volatility.

- Uncertainty ( $\sigma$ ) is the annual standard deviation of the firm's daily stock price. This is a firm-specific variable that proxies uncertainty about the longer-term outlook for the firm. CAPEX\_Sales is expected to have a negative relationship with this variable.

For the dividends and buybacks equation, the explanatory variables are:

- The relative cost of equity versus debt: ( $k - i_{AAA}$ ), which is the cost of equity as defined above minus the corporate bond rate defined above. DivBB\_Sales is expected to have a positive relationship with this variable. If the cost of retaining a dollar to invest is high and a firm can borrow very cheaply, it can reduce its costs by borrowing to pay dividends and to buy back shares.
- The average earning yield by sector: (EARN\_YLD), which is the ratio of last twelve months earning per share to current market price for the sector. Companies in low-growth sectors with a high earnings yield (low PE), such as utilities, telecommunications, oil and basic materials sectors (See Figure 8) pay higher dividends than high growth high PE companies. This variable controls for possible heterogeneity across sectors in the regressions. DivBB\_Sales is expected to have a simple positive relationship with this variable.

**Figure 8: Average PER and Capital Expenditures (To Sales) by Sector Over the Period 1997-2011**

Source: Datastream, OECD.

### *The data and the model*

The econometric analysis is run on a global sample of 4143 publicly traded companies from 31 countries<sup>8</sup> and 10 sectors<sup>9</sup> over the period Q1\_1997- Q4\_2011. Quarterly market and macroeconomic data were extracted from Datastream. Company data were also extracted from Bloomberg. Table 2 provides some descriptive statistics of the sample.

**Table 2: Some Characteristics of the Data**

	Capital expenditures / total sales (%)	Cost of equity (%)	Earning Yield, Average by sector	Stock price annual volatility (%)	Annual GDP growth rate (%)
<b>Min - 25%</b>					
<b>Mean</b>	<b>1.3</b>	<b>9.51</b>	<b>4.92</b>	<b>28.71</b>	<b>1.55</b>
Median	1.40	9.17	5.27	27.04	1.88
<i>Std. Dev.</i>	<i>0.7</i>	<i>1.34</i>	<i>1.71</i>	<i>9.78</i>	<i>3.00</i>
<b>25% - 50%</b>					
<b>Mean</b>	<b>3.4</b>	<b>9.50</b>	<b>5.01</b>	<b>29.04</b>	<b>1.86</b>
Median	3.41	9.12	5.30	27.44	2.14
<i>Std. Dev.</i>	<i>0.6</i>	<i>1.33</i>	<i>1.59</i>	<i>9.80</i>	<i>2.86</i>
<b>50% - 75%</b>					
<b>Mean</b>	<b>6.3</b>	<b>9.48</b>	<b>5.00</b>	<b>28.86</b>	<b>1.93</b>
Median	6.06	9.12	5.26	27.49	2.11
<i>Std. Dev.</i>	<i>1.2</i>	<i>1.39</i>	<i>1.62</i>	<i>9.54</i>	<i>2.94</i>
<b>75% - Max</b>					
<b>Mean</b>	<b>21.1</b>	<b>9.80</b>	<b>5.14</b>	<b>29.75</b>	<b>2.47</b>
Median	15.35	9.57	5.40	28.26	2.48
<i>Std. Dev.</i>	<i>15.3</i>	<i>1.46</i>	<i>1.81</i>	<i>10.23</i>	<i>3.21</i>

Source: Datastream. This table reports the average value from Q1 1997 to Q4 2011 of the ratio shown.

In the investment equation, the dependent variable (CAPEX\_Sales) at time  $t$  is regressed on a set of microeconomic and macroeconomic variables described below that correspond to time  $t-1$ , to identify the

main factors that drive the board room decisions concerning capital expenditure, dividends and buybacks.<sup>10</sup> In the dividend equation, the dependent variable (DivBB\_Sales) is regressed on the one-year lagged value<sup>11</sup> of microeconomic and macroeconomic variables identified in the previous literature.

The empirical model is specified by the following equations:

$$\begin{cases} CAPEX\_Sales_{i,t} = \alpha_{i,t} + \beta_1 * k_{i,t-1} + \beta_2 * i\_AAA_{i,t-1} + \beta_3 * GDP_{i,t-1} + \beta_4 * VOL_{i,t-1} + \varepsilon_{i,t} \\ DivBB\_Sales_{i,t} = \gamma_{i,t} + \beta_5 * (k_{i,t-1} - i\_AAA_{i,t-1}) + \beta_6 * EARN\_YLD_{i,t-1} + \vartheta_{i,t} \end{cases} \quad (10) \text{ and } (11)$$

Both of these equations are estimated with least squares on the panel. After testing for cross-section and time-fixed versus random effects, both found to be significant, both sets of effects were included in the regressions.

### The results

Regressions are run on the panel of MSCI companies for the years 1997 to 2011, involving some 212,632 observations. The results are shown in Table 3.

**Table 3: Long-Term Investment and Buybacks (excluding financials)**

<b>Capital Expenditures Equation</b>	
<b>Cost of equity (%)</b>	-0.18 *** (-4.65)
<b>AAA corporate bond yield (%)</b>	0.01 (1.13)
<b>Stock price annual volatility (%)</b>	-0.01 ** (-1.94)
<b>Annual GDP growth rate (%)</b>	0.07 *** (6.62)
<b>Dividend and Buybacks Equation</b>	
<b>Cost of equity - AAA corporate bond yield (%)</b>	0.03 *** (4.89)
<b>Earning Yield, Average by sector</b>	0.002 *** (12.52)
<b>Total Obs.</b>	212,632

Note: This table shows the results of estimating an equation system for an unbalanced panel of 4143 publicly traded companies from 31 countries and 10 sectors over the period Q1 1997- Q4 2011. See section IV for the definition of the explanatory variables. Cross-section and time fixed effects are used in the regressions as is the White cross-section covariance method. \*, \*\* and \*\*\* indicate statistical significance at the 10%, 5% and 1% levels, respectively.

For the investment equation:

- The cost of equity variable is significant at the 1% level: so when cost of equity rises, there is strong evidence that firms are likely to be reducing their long capital expenditure programs. The rate of interest on AAA corporate debt variable is not supported by the data. This may suggest that the AAA corporate bond rate is not a representative borrowing rate for the corporations

in each country when considering their investment decisions. However, all corporate bond rates are correlated, and it would be surprising to obtain this result if long-term corporate borrowing was systematically negatively related to investment. An alternative hypothesis is that the use of long term-debt is related to tax and interest rate incentives. For example, in current low rate environment it makes sense for firms to lock in low rates, carry out buybacks to boost share prices up to the point where the risk premium and the cost of capital are reduced back to normal, and investment via retained earnings becomes more attractive. M&A activities, privatisation and de-equitisation accompany very low rates, rather than incentivising Investment projects.

- Uncertainty, as captured by the volatility of the firm's stock price, is of the correct negative sign and strongly supported by the data.
- Finally, the accelerator effect in the growth rate of the economy is also supported by the data at the 1% level. An increase in annual GDP growth boosts companies' long term investment relative to sales.

For the dividend and buybacks equation:

- The cost of equity versus the AAA corporate bond rate is of the correct sign and is strongly supported by the data, with significance at the 1% level. This provides strong support for the above views: that a high cost of equity and a low borrowing rate (see Figure1 for example) encourages firms to carry out buybacks and to pay higher dividends to shareholders instead of investing.
- In addition, the average earning yield by sector is significant at the 1% level.

## V. Concluding Remarks

- Interest rates are at extremely low levels to support banks, and the search for yield has pushed the liquidity driven speculative bubble from real estate, derivatives and structured products markets into the corporate debt market. Equities have rallied strongly too, as investors are forced out of low-yielding cash and bonds. This asset cycle is certainly helping banks reduce losses on illiquid securities market products hidden on their balance sheet. In principle, the equity rally could also reduce the cost of equity making retained earning investment projects more attractive.
- However, as shown in Table 1, equities would have to rally to unrealistic levels to restore even normal equity risk premia at current bond yields. This should not be allowed to happen. Bonds will have to move back in line with nominal GDP trend growth before it is safe to invest for long-term growth. But this will not happen smoothly. Markets are assuming that this transition from low to higher rates can be handled smoothly by policy makers, when in fact this assumption may not be validated. In that case, bond volatility would likely be large, and banks that dominate derivatives businesses have not been separated to reduce the riskiness of a sharp rise in bond yields and renewed falls in asset prices. New fragility problems may arise in banks at this point in time.
- The paper presents a panel model using more than 4,000 global companies and shows that the Capex decision in general depend on the cost of equity, the accelerator and uncertainty, whereas buybacks are driven mainly by the gap between the cost of equity and debt. Right now the incentive structure implied by very low interest rates, which may be sustained for a long time, together with tax incentives, works directly against long-term investment. Debt finance is cheap,

while the cost of equity capital needed for risky long-term investment is still high (unaffected by low rates). This combination provides a direct incentive for borrowing to carry out buybacks (de-equitisation), shown to be at record levels in section III.

- In an environment of weak sales growth and high uncertainty, companies (particularly in Anglo-Saxon countries) are keeping their capital expenditure contained, and they are taking advantage of cheap corporate borrowing rates to issue debt and build up cash flow. This cash flow is used for paying dividends and carrying out buybacks of shares. Many companies that embark on investment now are punished by the selling down of their shares. This makes it difficult for policy to feed into normal recovery patterns—for investment to pick up, create jobs, and eventually cause the consumer to follow.
- Weak investment reduces future potential growth, and this in turn creates inflation and growth bottlenecks.
- The best way to improve long-term investment, are policies that return interest rates to normal levels, and reduce the distorted incentives for buybacks and low investment.

## Notes

1. For example, China Rail 10 year BBB+ was 16 time over-subscribed, and the unrated Agile Property from China was 10 times oversubscribed.
2. See Cohen, Hasset and Hubbard, (1999). This paper ignores inflation, given the sample period explored later on.
3. This may be double taxed if there is no company tax credit at the company tax rate  $t_c$  and the personal rate  $t$ , so that  $(1-t_d)$  is  $(1-t-t_c-t)$ . Notice that if the capital gains tax and the dividend tax were aligned, the cost would just be the \$1 retained.
4. The 10-Year US government bond yield plus the equity risk premium equals the dividend yield plus expected trend earnings growth of the S&P 500.
5. Hoshi et al. (1991) and Shin and Park (1999) who find that non Keiretsu / Chaebol group firms in Japan and Korea exhibit positive sensitivity of investments to cash flows. Hoshi et.al. found that firms that tried to leave bank structures in the 1980's were financially constrained. This of course worked against these firms in the long-running bank crisis.
6. Further work could look at systems estimation of more complex models. This work is provided to give a general indication of the tendencies in more than 4,000 global companies.
7. In other words, the 10-Year government bond yield plus the equity risk premium equals the dividend yield plus expected trend earnings growth of the national equity benchmark.
8. These firms can be located in North America (United States, Canada), Europe (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom), Asia-Pacific (Australia, Japan, New-Zealand, Hong-Kong, Singapore), Emerging countries (Brazil, China, India, Mexico, Russia, South-Africa, South-Korea, Taiwan).

9. These sectors are: oil and gas, basic materials, industrials, consumer goods, healthcare, consumer services, telecommunication, utilities, financials and technology.
10. From this perspective, a simple Granger causality idea helps to mitigate potential endogeneity issues.
11. The aim is to identify the main factors that have contributed to impact the long term investment strategy or dividend payment policy of firms.

## References

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