Financing the New Economy: Its Impact on Growth

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The exceptional performance of the US economy throughout the '90s, notably characterized by inflation-free high growth, a buoyant job market and higher asset prices, has led economists to successively examine the New Economy phenomenon, the reality of its favourable effects and the risks that it engenders. At the heart of these three considerations lies the negative and positive role that the new requirements for financing growth may play, and those of the New Economy more particularly. However, it would be a good idea to know exactly what we are talking about when we refer to the "New Economy" since this concept is still unclear.

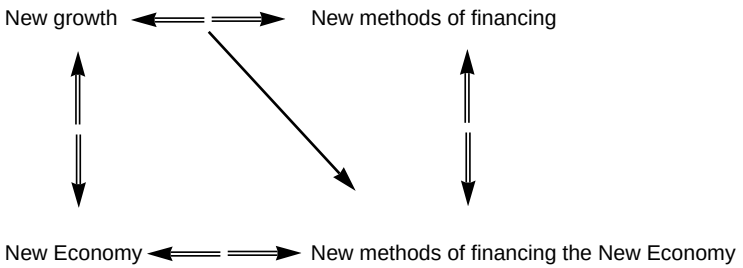
We are able to identify four mechanisms that characterize the New Economy, or at least as far as this subject is concerned:

- the balance between supply and demand for new goods and services which stimulates growth;
- the increase in productivity gains enabling higher growth with zero-inflation;
- the difficult task of estimating the value of companies producing these new goods and services in a macro-economic context that encourages asset prices to rise and generates financial imbalance;
- the need for an extremely large amount of savings to finance investment in new technologies and a new way of allocating these financial resources, focused on the deployment of new networks, and on telecommunications in particular. This kind of fund allotment is risky because no one knows how profitable these new investments will prove to be in the future.

COMMUNICATIONS & STRATEGIES, no. 40, 4th quarter 2000, p. 39.

Risk analysis is therefore central to any approach to the financing of the New Economy, for two reasons: the problem of rating value and that of accumulating too many hazardous investments. These spell risk for the New Economy and as a consequence, risk for growth. This leads us to examine the links between new growth, New Economy, new methods of financing and new methods of financing specific to the New Economy.

If we wish to be rigorous, the question of financing the New Economy and its impact on growth clearly requires us to differentiate these four terms by trying to specifically relate growth and the New Economy, as shown in the following diagram.



We will be coming back to these definitions in the first part of our paper for this purpose, since the terms we have used cover concepts which mean very different things to different people. This clarification exercise will also enable us to identify some of the kinds of interaction that exist between the various elements and, above all, allow us to highlight the existence of a method of financing specific to the New Economy.

In the second part of our work we will attempt to outline answers provided by economic growth theory on the way in which the financing of the New Economy can have an effect on growth. Since productivity has been identified as the key source of expansion, we will be looking to find out whether the financing of the New Economy enables increased productivity and whether such a gain can justify the level of asset valuation in this sector.

More generally speaking, however, the question of justifying profitability requirements specific to the New Economy sector calls for a quantification of the risks looming over it. This means adopting a stance vis-à-vis the way

current market phenomena are interpreted, which is why we will be presenting economists' divergent analyses in the third part, before giving our own conclusions and showing how real the financial and economic risks actually are.

■ The New Economy and the Specific Nature of its Financing

New Economy and new growth

It is difficult to give a precise definition of the New Economy because it actually covers two different concepts. To begin with, the New Economy designates the aggregate of firms comprising the new information and communication technologies sector (ICT). In a report commissioned by the French Ministry of Finance and Industry, BIPE (2000), a market research and consultancy firm, considers that the economy "is divided into two major sectors": the new ICT sector and the non-ICT sector. The line of demarcation between these two sectors is clearly difficult to establish and Bipe chiefly draws upon the OECD system of classification in this case, leading to its definition of new ICTs as "activities which produce goods and services supporting the economy's digitization process". This sector therefore includes the people producing new technologies, and to a certain extent, those using them.

The boundaries of the new ICT sector are still difficult to distinguish. Nevertheless, on the basis of official categorizations, particularly the one devised by the OECD, we are able to identify the main lines of business making up this sector, - namely, computing, electronics and telecommunications - embracing both productive activity and related services.

However, in a much more general manner, the New Economy is also the expression of a new economic model. The US's economic performance over these last few years, mirrored by identical trends in a few other OECD countries, is characterized by high growth with zero-inflation, a low unemployment rate, the fast expanding role of new ICTs and ever-high market valuations, especially in the hi-tech sectors. These amount to "a combination of factors which make us feel that a fundamental change has

taken place". As Gérard MAAREK (2000), chief economist for the Economic and Banking Studies Department at the French National Crédit Agricole Bank, said:

"The performance shown by the American economy may mean that a new model of economic and social organization has been created, indicating veritable structural changes".

No consensus has been reached on how these changes should be interpreted, however.

The theory of economic cycles and limitless growth upheld by certain economists (1) is still strongly contested, in particular, because it cannot be backed by current data.

The United States has actually been enjoying rapid and sustainable growth since 1995. GDP rose at an average annual rate of 4% between 1995 and 1999 (2). For a long time, this growth in the US was seen to be a cyclical upturn amidst extremely favourable circumstances (rise of the $ and drop in the price of raw materials limiting inflation, combined with a shrewd monetary policy), but it far outlasted the predictions of "classic" economic theory. In fact, as we advanced in the cycle, we saw that a number of the indicators that we had expected to fall, like GDP most notably, continued to climb.

A debate about this new growth and where it originated from was sparked off among economists, focusing more specifically on the portion of this new growth that can be attributed to the New Economy. Economists such as JORGENSON & STIRIOH (2000) or Cohen (COHEN & DEBONNEUIL, 2000), all share the view that the development of new ICTs only roughly explains half of this expansion.

This lack of consensus on a definition of the New Economy is important in sofaras the way that we explain the New Economy sheds a different light on the role of financing. Are we talking about new ICT-specific financing or more generally, about a series of upheavals that the financial sphere has experienced over the last decade?

(1) We can notably cite the economist Stephen S. ROACH and the chief editor of *Business Week,* Stephen B. SHEPARD.
(2) Source Datastream.

Are there any new methods of financing?

Financial systems have been undergoing a radical transformation these past few years, which has shaken up economic methods of financing. This evolution chiefly originated from an absolutely remarkable economic situation combining economic and financial variables, notably the liberalization of financial markets and the demographic shock effect.

Among the most significant financial developments, we can cite the increase in the number of non-bank lenders, the development of stock options and microloans, the great surge of venture capital… and, above all, the prominent role played by financial markets and the way that their characteristics have evolved.

We know how much the expansion and the opening-up of financial markets have enabled stock exchanges to grow in importance at the expense of the banking system. Firms are now turning more and more frequently to equity markets to obtain capital by means of initial public offerings (IPOs) and by issuing stock as well as bonds.

This trend was amplified by the creation of secondary stock markets (NASDAQ, EASDAQ the *Nouveau Marché* in Paris, etc.). NASDAQ, which initially set out to be a solution for funding small, fast-developing enterprises that did not meet other markets' criteria, is now becoming an ever-growing source of capital and is extending its reach to other categories of companies.

Moreover, the combined impact of the financial and demographic shock has given rise to tax incentives to constitute capitalization-based pensions, programmes to encourage save-as-you-earn (SAYE) schemes and employee shareholding. This phenomenon has had two important consequences.

To begin with, American households reallocated a massive portion of their assets, giving greater precedence to corporate shares (30% of their net wealth) (3). Baby boomers notably bought (either directly or indirectly through investment funds in particular) an enormous amount of shares to finance their retirement. What's more, institutional investors (mutual funds, retirement funds, etc.) have now become the key players in financial markets. Year-end 1999, they managed around $3100 billion in the US via mutual funds alone.

(3) Source: Fed.

The fact that individuals have been replaced by institutional investors with higher demands for profitability has increased the return on equity (ROE). Since the gap between ROE and interest rates had considerably widened, firms responded by increasing their leverage given that credit was granted far more easily. This combination of factors brought about the rise in asset prices.

Easier access to financial markets can thus be observed, along with the tremendous flow of private capital and the prominent role played by institutional investors. All of these factors create a macro-economic environment that is conducive to the surge in asset prices.

However, this phenomenon has obviously had an impact on New Economy firms in particular.

Why? Because this increase concerned the price of assets with an uncertain value, in other words, medium-term profitability was difficult to gauge. Anything can happen when you take into account these estimation problems, which is why the price earning ratio (PER) of companies in the new ICT sector is far higher than that of traditional firms.

What does "financing the New Economy" mean?

We cannot talk about financing the New Economy without venture capital and secondary financial markets immediately springing to mind. These are the two elements behind the funding of small firms' and start-ups' particular - because more risky - innovation. The emergence of venture capital and secondary financial markets with more flexible access conditions, has played a major role in supporting new tech firms.

Yet the financing of the New Economy is not just limited to venture capital and secondary markets. The financing of UMTS, the technology that will replace GSM in mobile telephones, can also be considered as a kind of New Economy financing, for example, even though it is beyond the scope of venture capital and secondary markets.

Although difficult to define, we are nevertheless able to say that the financing of the New Economy covers a much broader concept than venture capital and secondary market funding. This explains why measuring the true scale of New Economy financing is still no easy task.

Let us give a few figures though: according to the US National Venture Capital Association, NVCA (4), venture capital firms in the United States provided funds to the tune of $48.3 billion in 1999 (5), up 152% in comparison to 1998. $18.8 billion went to the Internet sector alone, representing 40% of total finances. The European Venture Capital Association, EVCA (6), estimated that Eu25.2 billion was invested by VC companies in 1999, amounting to a 74% increase compared to 1998. Equity-type investment capital has thus become one of corporations' prime sources of investment.

Although venture capital financing has played a major part in the development of the New Economy, we need to bear in mind that the New Economy actually confirmed what was already an increasingly popular method of corporate financing. In other words, investment capital also owes its expansion to the New Economy, or at least in part.

There are other forms of capital-based funding. Business Angels are probably the largest source of finance for start-ups in the United States, especially in the early stages of their development.

With the market booming, numerous venture capital funds have become so large that they no longer consider investing any less than $1 million, leaving Business Angels with a greater share of the market.

Furthermore, venture capital is expanding with the emergence of more and more internal corporate funds. These two types of financing are not included in the statistics, or only with a great deal of difficulty.

While investment capital gives fledgling companies an initial boost and helps them in part of their expansion process, the long-term objective is either to be bought by a large group or an IPO.

Investment capital has taken advantage of the way it is perceived on stock markets. Investors agree to pay the top price when floating companies despite the extra risk.

(4) Source: http://www.nvca.org, : http://www.mercurycenter.com
(5) Source : http://www.pwcglobal.com, http://www.pwcmoneytree.com
(6) Source: http://www.evca.com, "Europe Private Equity", n° 16, July 2000.

Venture capital does in fact manage to generate an attractive internal rate of return (IRR) for investors looking for high yields and a wide-ranging asset portfolio (induced by the drop in interest rates). Venture capital has actually benefited from the regain in intermediary savings management observed since 1994 with professional investors (investment funds, retirement funds, life insurance, etc.) investing riskier assets than private individuals.

The vibrancy of the IPO stock market, which is now taking on a more global aspect, can also be felt in the venture capital industry. According to Securities Data, 531 IPOs were recorded in the world in 1999 compared to 369 a year earlier. Thomson Financial claims that the figure is even higher, with an estimated 1,134 IPOs, of which 606 were European. But the impressive amounts of money venture capital has attracted remains insignificant in relation to the overall sum invested in financial markets. As we saw earlier, secondary markets were established to facilitate small entrepreneurial companies' access to capital.

The most well known, NASDAQ, experienced a 214% market capitalization increase between October 1998 and April 2000. This hefty jump can be compared to the 55% rise on S&P 500 and the 42% upturn on Dow Jones over the same period.

Since New Economy stocks attract scores of investors, security prices have obviously gone sky-high. Thus, in April 2000, the price earning ratio (PER), estimated on the basis of the projected earnings consensus for the year, stood at 100 for the one hundred highest capitalizations on NASDAQ, whereas it only reached 24 for S&P 500 firms.

The tech-stock correction of spring 2000 led a number of economists to question the validity of corporate valuations based on nothing but predicted markets and profits. The American financial analysis consultancy, Pegasus Research International, has identified 51 companies that may "have burnt up all the cash they use to finance their activity" within the next 12 months. Group valuations are still especially high in the telecommunications sector, while the promise of growth is still way below the market average and the visibility of mid-to-long-term profitability continues to be poor. Furthermore, the financing of UMTS licenses has plunged these companies deeper into debt, concurrently increasing the cost of borrowing and as a corollary, the cost of capital.

The financing of UMTS (7) licenses is the best example of the second characteristic of New Economy financing, namely the massive allocation of savings to enormous, uncertain telecommunications projects.

The astronomical sums involved (over Eu100 billion for only 5 European countries) pose a problem of profitability for firms coming forward to acquire these licenses.

Will tomorrow's consumer be prepared to use and pay for the services made available to him/her, bearing in mind that the percentage of subscribers currently making use of services offered by operators on a regular basis is estimated at only 2%?

A great many people think that the billions spent on obtaining UMTS licenses is a veritable gamble on the future development of mobile telephony, and this has left an awful lot of analysts perplexed.

There does seem to be a specific method of financing the New Economy therefore, which is determined by specific valuation requirements.

This financing is characterized by the need for high returns on the one hand, resulting in more speculative trends and perhaps special risks, and on the other hand, by arrangements that could well be qualified as "wagers", such as the funding of UMTS.

High growth with zero-inflation and the incredibly optimistic profit forecasts for New Economy firms have both pushed up market valuation. This produces financial imbalance with the creation of a financial bubble that may well burst at some point, thus jeopardizing the positive impact of the New Economy on growth.

(7) See in particular on this subject:
- SCHAEFFER A. (2000) *UMTS: Le gouvernement n'a pas le droit de vendre l'avenir d'internet en France.*
- "L'économie douteuse de la vente des licences UMTS", *CDC Marchés*: 2 June 2000.
- "Europe's mobile telephony: Waves of the future", *The Economist,* 8 July 2000.
- "UMTS : La chasse aux licences est ouverte", *Le Revenu*, n° 584, 28 August 2000.

■ Is there a Theoretical Explanation for the Relationship between the Financing of the New Economy and Growth?

Once we have recognized that there is a specific method of financing the New Economy, we are faced with the question of how and in what way can it influence growth, and of whether we are able to gain any insight on the matter from economic theory.

The impact of the financial system on growth is a classic issue and was first raised in 1873 by W. Bagehot. All economists have come to agree that financial growth is a response to an increase in demand for financial services when an economy develops, but they display differences in opinion as regards the role of the financial system in economic growth.

A financial system has numerous characteristics: the form of mobilizing savings, the allocation of capital derived from savings, risk-reduction procedures, etc. The specific trait of today's financial system is perhaps the fixing of standards for requisite returns, as currently witnessed with the imposition of a 15% minimum ROE on markets across the globe.

In view of the functions performed by a financial system, we are led to believe that if it works well, this system will be able to improve the savings-investment equilibrium. Since productivity growth has now been identified as being the main source of expansion, we need to ask ourselves whether the financing of the New Economy enables these productivity gains to be optimized, and if these rises can justify the price at which assets are valued in this sector, because this would provide us with hope for balanced and sustainable growth.

Classic models retain the following growth factors: the amount of capital, the size of the workforce, technological progress and innovation. Models measure the first two of these factors but sum up the qualitative aspects (education, technological advance, the concentration of corporate ownership, etc.) in the concept of residual factors. To be more precise, if the savings rate is a variable explaining economic growth, and an increase in this rate gives rise to a period of rapid expansion, it will no longer have any long-term impact and will result in a standstill. Capital yields decrease, limiting the accumulation process, and thus cancel growth spontaneously. At this point, only technological progress is capable of maintaining the rate of return and preventing the tendency to stagnate. Technological advance is therefore the only element to be found in both classical and neo-classical

thought. The relationship between the financial system and growth is not included in this reflection in sofaras the former is not even considered as a residual factor.

We can only imagine a type of financial development having an effect on the growth rate if it facilitates technological progress. This intuition is solely developed within the framework of endogenous growth in which the characteristics of the economic system being examined condition growth rate.

Let us now present a simple endogenous growth model (AK model, PAGANO, 1993):

Let g be the growth rate, which can be defined as:

$$\downarrow \quad g = A\phi\sigma - \delta$$

where A is capital productivity, ϕ the portion of savings used for investment purposes, s the savings rate and δ the depreciation rate.

This model assumes that financial developments affect economic growth at three levels by influencing capital productivity (A), the efficiency of the financial system (ϕ) and the savings rate (s), on the understanding that the first two of these effects are fundamental.

What we need to ask ourselves is whether productivity gains justify the conditions for return on assets (ROA) in the New Economy. Putting this more directly, we need to know whether there a danger of a financial bubble related to New Economy stocks or not. This obviously raises the question of new ICTs' specificity in productivity gains.

Are the effects of technological progress spread evenly within the economy or are they concentrated in the leading-edge sectors? We have to find out whether or not productivity growth throughout the economy originates mainly from gains generated by IT firms alone.

This is the theory that the American economist, R.J. GORDON (1999) put forward in 1999 and supported with statistics. He believes that computers have only improved productivity in the IT field and that they have had no effect on any other sectors of the economy, even on those equipped with new technologies on a large scale.

However, if as Robert Gordon claims, the sectors producing IT goods have a definite impact on factor productivity, we cannot judge in advance what the effects on sectors "importing" productivity gains generated in this manner will be (COHEN & DEBONNEUIL, 2000) .

This leaves us with the following question: although the disappearance of the Solow paradox seems likely, does this necessarily mean that we should view ICTs as the medium for rapid and stable growth? As always in this debate, economists' opinions diverge on the question of the valuation of new technology assets.

■ Financing the New Economy and its Real Impact on Growth

It is imperative that we quantify the risks threatening the New Economy when addressing the question of its specific profitability requirements.

Is there a financial bubble related to new technology values?

The answer is obvious: the PER more than doubled between 1995 and 2000 in the United States and in France, although in a completely heterogeneous manner. Tech stocks rose far quicker than average, especially on NASDAQ. We only have to look at the PER figures at the beginning of the year to see this - on the Dow Jones market, they averaged at 24, on the S&P 5000 at 33 and more importantly, at 48 on NASDAQ. There is no shadow of a doubt that corporate share prices and valuations in the new ICT sector have risen very sharply over the past five years in the United States, and over the last year in France.

Of course, it is easy to understand the reasons behind this price increase in relation to the high demand for shares. Let us refer to the thoughts of economists from the French market research group, CDC (8) on this matter, which provide us with a list of explanatory factors:

- demography is conducive to long-term share-based savings as baby boomers get ready for their future retirement,
- credit is being granted very actively,

(8) CDC Marchés, "Comment finit la hausse des valeurs technologiques ?", *Flash*, n° 2000-55, 21 March 2000.

- banking technology is increasingly basing solvency analysis on the measurement of the value of a person's wealth,
- the buying-back of shares by companies increases the capital-debt ratio and thus ROE,
- the tax reform favours share ownership,
- institutional investors' poorly balanced shares at the outset.

We are thus able to espouse these economists' view that a speculative bubble exists, particularly in relation to New Economy values. How can we keep risk to a minimum? A great many economists have answered this question in all kinds of different ways. Among those that reject the theory of the New Economy, Patrick ARTUS & Michèle DEBONNEUIL (1999) defend the idea that financial markets' high valuations can be explained by the melding of several phenomena. To start with, the growing intermediation of savings management increases profitability requirements.

As a consequence, companies increase their capital-debt ratio and push up ROE considerably, while economic profitability rises only slightly. Furthermore, the competitive structure of the management market generates a high demand for investment funds for risky assets and thus lowers risk premiums. Operators' biased (optimist) market forecasts can also be added to these two phenomena. These economists therefore interpret high stock market valuations as complex and speculative bubbles.

They see macro-economic consequences at two levels. Firstly, the growth of the stock market increases borrowing capacity and brings the savings rate down. This fuels an upturn in consumption and investment, resulting in growth - as can be seen in the United States at present. The second consequence - the significant increase in the gearing ratio - makes the situation more and more fragile if a cyclical downturn should arise. If a recession does hit the US, it will be "sudden and severe" on account of this excessive debt and will also have a direct impact on employment (because work is currently driving risk and not capital). This is why these economists recommend introducing prudential regulation.

Gérard MAAREK (2000) views things differently. He explains that "the New Economy identifies itself with remarkable economic circumstances", with each of its characteristic elements originating from facts related to this particular economic climate. This means that the recent period can be interpreted as a time of transition to an unemployment and low inflation regime similar to the one experienced at the end of the '60s.

The rise in stock values is linked to the association of two phenomena: the reallocation of shares and the purchasing of shares (in an aim to increase yield). Maarek singles out growing economic profitability as the spark that triggered the increase in financial return, coupled with a drop in interest rates making it possible to lower the cost of borrowing, but he dismisses an increase in debt.

The growth in the number of IPOs can be explained by the height of Tobin's famous "Q" ratio, "market value over equity capital", which is well in excess of 1. This translates into the fact that old capital is more expensive than new capital.

Similarly, in an environment where sources of inflation have run dry, he finds two causes of rapid growth: the demographic shock (baby boom) and the financial shock, via pension funds, which have increased the stock of productive capital enabling labour productivity to rise.

Moreover, brisk growth is the source of greater purchasing power and the zero-inflation unemployment rate (drop in the NAIRU).

With regard to Wall Street valuations, Gérard Maarek retains two hypotheses. Profits are forecast to grow at a rate of 16% a year and 18% in the medium-term - although this challenges the common sense reasoning of macro-economics - or risk premiums are low, justified by the low volatility of the economy and the quality of the socio-political environment.

In the same way as Patrick Artus and Michèle Debonneuil, he notes that the repercussions of a stock market crash depend on the economic agents' state of financial fragility. While he considers that the United States has moved from a debt economy to an equity economy, he does not however neglect the weighty liabilities that have been pressing down on US households and corporations since the '80s. Having said this, commercial banks are not in debt, so an accommodating monetary policy could reduce the effects of a collapse.

Lastly, Edward Yardeni (9), who is very much involved in the vision of the New Economy, gives us a more subtle analysis of the rise on NASDAQ. He identifies two possible origins for these levels of valuation. The first of these

(9) Sources: http://www.yardeni.com, notably: "Est-ce une bulle ?", February 2000; "Une succession de corrections", April 2000; "Revers de fortune", April 2000; "Quelle valeur donner à la croissance des bénéfices futurs ?", thematic study n° 49, January 2000.

is that this is one bubble among many others and the second, is that it is the consequence of a legitimate valuation of the New Economy - the latter assumption being confirmed by 1999's Q4 profits.

Yardeni offers a middle-of-the-road analysis. Current valuations are definitely the fruit of investors' optimistic predictions, in part, but, more than anything else, they stem from the globe-spanning, competitive and productive high-tech New Economy, which is now emerging rapidly with the development of the Internet, broadband access, wireless technologies…

These are the technologies behind the use of "Net-exchanges", bringing costs down and consequently, increasing productivity. Edward Yardeni is therefore not convinced that there is a bubble, even though he does not reject the hypothesis. He believes that high valuations are chiefly the result of actual and projected profit growth rates. However, he thinks that it is highly unlikely that a large number of "New Economy" firms will manage to keep up such an outstanding performance.

As far as the macro-economic consequences of current valuations are concerned, he made the following analysis during the mini-crash in spring 2000:

"I agree that the bullish stock market is not the classical bubble that Mr. Greenspan described this year. I think it would be more exact to say that the very narrow bull market of the 'New Economy' has been hiding the very wide 'Old Economy' market since the summer of '98. What we have here is not one single bubble within the New Economy market, but several bubbles that are all beginning to burst, or at least are starting to deflate. I think this phase will have a salubrious effect by blowing a bit of fresh air into the undervalued stocks of the Old Economy, particularly in the energy, retail and finance sectors".

Edward Yardeni makes no alarmist predictions in relation to the consequences of a possible stock market crash. He raises the problem of the valuation models used, and that of the Federal Reserve Bank in particular. Although market values are not "cheap", he thinks that the FEDs basic security valuation model overestimates immensely. Yardeni explains that the model does not give sufficient weight to the long-term growth of earnings and does not take account of the much higher degree of risk associated with these shares in comparison to State bonds.

As we can see from the theories advanced by these economists, analyses of New Economy mechanisms and interpretations of market valuations, the impact of the New Economy, its extent and above all, the consequences of a stock market crash, all differ.

The speculative bubble is not the only problem. We may also wonder about the existence of a risk threatening the real economy, for the simple reason that nothing proves that resources are being well allocated.

The New Economy requires capital accumulation to be increased enormously. Of course, labour productivity is speeding up but there are no signs of a net increase in overall factor production. This leads us to ponder on the repercussions of the rise in capitalistic intensity, and notably the increase in the cost of capital paid by companies, as well as on the underlying question of the availability of the savings required to finance necessary extra investments in the New Economy. If the Eurozone experiences the same growth in new technology investments, it is not certain that it will be able to attract sufficient capital to finance the New Economy in the same way as in the US.

It is true that we often focus our attention on the financial risks of the New Economy. However, there is also a real economic risk which is generated by the rise in the cost of capital, the increased consumption of fixed capital, the risk of a loss in profitability if the distribution of added value cannot be distorted to the detriment of wages and the risk of insufficient domestic savings.

■ Conclusion

Has the New Economy engendered a new form of inflation-free growth, allowing numerous jobs to be created on a sustainable basis? Are the methods of financing the New Economy based on new laws, notably justifying this sector's very specific requirements for profitability, which has yet to be achieved in most cases?

What we can actually see is that an overabundant credit offering and the overoptimistic effects of the New Economy can lead to an excessive valuation of assets - and these two mechanisms maintain each other. While new technologies initially raise the price of assets, financial technology accentuates the phenomenon by basing the granting of credit on the value

of the assets held, thereby "encouraging" the purchase of assets and thus, their soaring prices.

This calls for our first conclusion: every reasonable economic policy must therefore attempt to prevent the increase in asset price/ increase in credit offer spiral.

More generally, this New Economy may be just one fragile - because reversible - moment in the present economic cycle. As Gérard Maarek mentions, there only has to be a roundabout turn in some of the factors for the entire current phenomenon to move into reverse gear as well: for example, when pension funds narrow down their staff's activities and pull out of the stock market. Thus, from 2004-2005 onwards, the excess in demand for shares should give way to the excess in offers, which will bring their prices tumbling down. Until then, the re-emergence of inflation, or any other factor that pushes up rates on a long-term basis, could bring in its wake a severe stock market correction that would have a negative impact on growth. The scale of the consequences of a crash will however depend upon the state of economic agents' financial fragility, such as the level of debt exhibited by US companies and households, evoked by certain economists. This is why a collapse of the market would most probably bring about a severe recession in the United States. However, the estimated impact on the rest of the world is generally very low. The French Deposit and Consignment Office estimates the impact of a US crisis in Europe at only 1/4 of a point of GDP maximum. In the same manner, numerous economists agree that improving the economic foundations of developing countries should enable them to withstand an American recession.

The second conclusion is that if we wish to avoid this crash, we need to bear in mind that it is difficult to imagine any strong and global-scale correction occurring as long as credit is being granted so dynamically because the excess of means of payment has to be invested in assets and traditional assets have a limited absorption capacity.

Therefore, if the credit offer falls as the result of a tighter monetary policy or else, at the banks initiative, a proper correction of asset prices will be able to take place. Any sudden variation in monetary policy could lead to a recession.

Finally, and most importantly, although the development of methods of financing is especially conducive to innovation at present, and the ensuing productivity gains allow us to conclude that the funding of this New

Economy has had a positive impact on growth, it is nonetheless true that this form of finance is risky due to the rates of yield required, and especially, because this financing is being carried out in an uncertain context in which it is impossible to measure the risks of failure.

Perhaps, as J.P. BETBEZE (2000) affirms: "all these means, be they banking or markets, are inadequate when it comes to satisfying the requirements of the New Economy", and maybe the new private equity market is more suited to financing the New Economy since this method probably allows valuations to follow a more mature course.

Since this is not the case, it would appear that strong prudential measures are called for.

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liquidity. While it is true that at some levels, volatility leads to market breaks, such as one seen in Chicago futures markets in October 1987, it can be argued that in anticipatory markets volatility is a necessary condition of liquidity, a fundamental mechanism to cope with information disequilibrium.

Strategic behavior

Another reason for fundamental instability of financial markets is their structure and the resulting attitudes of market participants.

We have noted the incestuousness of financial markets. Under information market approach, the main reason for this incestuousness is that financial institutions are simultaneously largest producers and consumers of financial information. This means that they are simultaneously buyers and sellers. In technical terms, they are market-makers, displaying to the market two-way prices, the buy price and the sell price, the former being preferably lower than the latter.

This two-way approach reflect a fundamental ambivalence of information: for any market participants, information is their biggest asset but also their largest liability. They can make huge profits from the information trading but also huge, potentially fatal losses. Thus, they constantly grapple with major dilemmas: how much information to disclose? How active to be in the market? How to balance aggressive information trading and risk management? If they do not disclose their views and information they hold, nobody will trade with them. If they disclose too much, the size of position they hold in a given instrument, for instance, other participants will take advantage of it, causing large losses. Furthermore, in an information-intensive market, any advantage from exclusive access to information is short-lived and has to be capitalized upon quickly.

In order to cope with this dilemma and associated risks, market participants adopt a range of strategic attitudes. Not only they constantly look for new and more forward-looking information, they also seek to anticipate reactions of other participants. This goes well-beyond what Keynes described as "beauty contest" approach: in order to choose the most beautiful girl one need to consider not only his own preference but also that of other judges (KEYNES, 1936; ORLEAN, 1989 and THALER, 1991). Sophisticated players are looking for second and third order derivatives and seek manipulate the signalling aspects of their transactions.

In the financial market context, greater information transparency does not reduce the risks to the participants, to the contrary it may increase it. Thus markets players often seek to limit transparency, to make market more viscous, by introducing zones and periods of opacity. The viscosity is a particular concern of marketmakers, who want to hide the size of their positions. In foreign exchange markets, where transaction size is very large, all prices quoted on broadcasting networks such as Reuters or Telerate are indicative and have to be negotiated on a bilateral basis. In equity markets, such as London Stock Exchange, price quotes displayed on public information networks are binding up to certain quantities but, until recently, market makers did not have to publish their large transactions. This ability to hide position has generated considerable controversy between partisans of transparency and marketmakers who argue that the premature disclosure created an unacceptable risk level and therefore they would be unwilling to engage in large transactions (London Stock Exchange, 1995).

The risk of transparency and marketmaking explains the persistence of brokers in a market with abundant information flows, and therefore *a priori* susceptible to disintermediation. Those brokers no longer intermediate between end-clients and financial institutions but between marketmakers (inter-dealer brokers).

Market regulators are continuously trying to strike a right balance between transparency and opacity but such balance appears elusive as it is quite difficult to set hard and fast rules, applicable all the time to all markets.

Network of networks

The fact is that, in the world of global economy and geofinance, markets remain remarkably diverse and this diversity is growing. Financial markets should be seen as a loose set of interconnected markets rather than a single tightly integrated market. They constitute a network of networks, a financial equivalent of Internet. Not only, there are different markets for different instruments, foreign exchange, bonds, equities but within single instrument, market structures can vary considerably. For instance, within equity markets, it is customary to distinguish between order-driven markets, where all orders are transacted in a single market place, and quote-driven markets, where transactions are carried out by competing market-makers. A specific academic discipline, market microstructure analysis, has been created to deal with the issues of various structures of equity markets (COHEN, MALER, SCHWARTZ & WHITCOMB, 1986; GILLET & MINGUET, 1994).

The persistence of market diversity and fragmentation can be explained by the strategic behavior of market participants seeking to preserve their particular mix of transparency and opacity and the concerns of regulatory authorities, who want to maintain control of markets. But it is also a reflection of fundamentally heterogeneous nature of information. Information should not be seen as one large and undifferentiated flow of bits. Rather it is comprised of thousand of distinct if interrelated streams of data, images and symbols.

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