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The Nature, Performance, Economic Impact and
Regulation of Investment Banking

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Abstract: We analyse the nature, economic performance, impact and regulation of investment banking. Following a historical excursion, we discuss extant views on these issues, identify limitations and propose some political economy-based considerations that need to be incorporated into the analysis in order to obtain a better appreciation of the role and regulatory challenges of investment banking.

Key words: investment banking, performance, economic impact, regulation

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1. Introduction: History, nature and activities of Investment Banking

The inception of investment banking can be traced back to European merchant banks, such as Hope & Co, Baring Brothers and Morgan Grenfell, which financed the Atlantic trade during the 18th and 19th century. This merchant banking model, relying primarily on family owned capital, was then applied and developed further across the Atlantic by early American firms, such as Dillon Read and JP Morgan & Co., and offered a novel means to firms seeking financing by issuing securities to third-party investors. These new firms engaged in this business became known as investment banks (Morrison & Wilhelm, 2007). Over the years these entities have rapidly evolved from offering traditional security issuance to focusing on brokerage, merger and acquisition advisory, research, asset management and propriety trading (Stowell, 2010). At the same time the (CPI-adjusted) capitalization of the top ten investments banks rose dramatically from \$1 billion in 1960 to \$200 billion in 2000, while the number of professionals recruited by the top five investment banks increased from 56,000 to 205,000 between 1979 and 2000 (Morrison & Wilhelm, 2008).

On the 15th of September 2008 Lehman Brothers, one of the largest investment banks globally collapsed marking a symbolic turning point for the industry bringing about major changes in the nature of investment banking (Eckholl, 2010). Specifically, their risk taking activities were diminished and a direction towards less leverage and a larger capital base was initiated (Stowell, 2010). This brought about significant restructuring in the investment banking industry; Morgan Stanley and Goldman Sachs changed to bank holding companies¹, Bear Sterns was sold off to JP Morgan to avoid bankruptcy, Lehman Brothers declared bankruptcy with its US operations acquired by Barclays, and its European and Asian operations acquired by Nomura. Lastly, Meryll Lynch was sold to Bank of America (Stowell, 2010)

¹ A bank holding company is a firm that controls one or more banks, where these are engaged in both commercial banking activities such as deposit-taking and broader investment strategies such as securities underwriting, private equity and asset management (Avraham et al., 2012).

In the backdrop of regulation policy debates in the US and Europe, which are aiming to separate investment and commercial banking activities, there are currently nine major *global* investment banks that operate both deposit taking operations and investment banking activities: JP Morgan, Bank of America, Citigroup, Credit Suisse, UBS, Deutsche Bank, Barclays, Goldman Sachs and Morgan Stanley (ibid). However, there are other investment banks that compete in regional markets such as HSBC, Wells Fargo and Nomura, and in certain regions these outperform the aforementioned. According to the Investment Banking Review of The Financial Times, the revenue, in term of fees, of the top 10 banks in the year ending 2014 surmounted to more than \$77 billion (FT League Table, 2014).

The ten largest investment banks as of 2014 (by total fees from advisory services):

Rank	Company	Fee (\$m)
1.	J.P. Morgan & Co.	5,842.57
2.	Goldman Sachs	5,218.12
3.	Bank of America Merrill Lynch	5,203.45
4.	Morgan Stanley	4,955.20
5.	Citigroup	4,193.78
6.	Deutsche Bank	3,845.81
7.	Barclays	3,559.67
8.	Credit Suisse	3,519.65
9.	Wells Fargo	2,142.28
10.	UBS	2,049.06

Source: <http://markets.ft.com/investmentBanking/tablesAndTrends.asp>

As the activities of an investment bank are not homogenous, a good starting reference in defining this financial institution is to compare it to a commercial bank, as investment banking involves, in the simplest possible terms, whatever banking activity is outside the activities of a commercial bank (Iannotta, 2010). A commercial bank is primarily involved in borrowing money from deposit holders and lending to individuals (looking to buy a house or car, etc) or firms (looking to buy equipment, etc). This 'depository institution' is also characterized as a highly leveraged financial intermediary, as its portfolio consists of a small ratio of equity against a proportionally large ratio of short term debt in the form of deposits². The importance of commercial banks in a financial system is to offer much needed credit to "opaque" borrowers, firms or individuals whose ability of paying back their loans is subject to conditions of uncertainty. Commercial banks resolve this problem, classified in the literature as adverse selection and/or information asymmetry, by creating a more or less efficient mechanism of screening and monitoring both the creditworthiness of borrowers before the loan is issued and the progress of this investment.³ At the same time problems of moral hazard and credit rationing can be mitigated, hence avoiding severe market failures⁴ (Iannotta, 2010).

The activities of investment banking, on the other hand, can be grouped into three main areas, all of which are supported by a research department. These are:

- i. Underwriting and advisory
- ii. Asset management
- iii. Trading and brokerage

² Deposits are characterized as short term debt as they are obliged to be allocated at any time, without little or no notice period (Iannotta, 2010).

³ See Diamond (1984), Ramakrishnan & Thakor (1984) on the nexus of credit screening costs; Rajan (1994) on how commercial banks accomplish efficient monitoring; and Berlin & Mester (1992) on bank loan screening.

⁴ See Akerlof (1970) on the effects of adverse selection and moral hazard; Stiglitz & Weiss (1981) on credit rationing.

The first activity, underwriting and advisory, is considered as the core task of an investment bank and is handled by the investment banking division. Underwriting is considered the most important task of an investment bank as it works with corporations and government agencies in need of financing by raising capital in the financial markets by issuing securities. Securities can take the shape of a wide number of financial instruments such as equity, debt or “hybrid” securities such as debt with warrants (Iannotta, 2010).

For the purpose of this paper, we will focus on two securities, debt and equity. Debt securities offer a fixed arrangement of payment; however, the holders of these securities receive voting rights only when the payment is not completed. On the other hand, holders of equity securities receive voting rights but receive payment after all liabilities have been dealt with (Morrison & Wilhelm, 2008). Crucially, a security's market is very different to other sources of financing, such as a bank loan, by the significance it places on pricing. As the relevant information affecting the corporation's operation, and the price of its security, is widely dispersed, investment banks are able to gather and verify all the financial data through what is called a 'due diligence' procedure and place a price on the security (Iannotta, 2010).

In the specific case of an equity security, investment banks raise capital for a firm through an Initial Public Offering (IPO), defined as “the first sale of a firm's shares to the public and the listing of the shares on a stock exchange” (Iannotta, 2010: 45). The most obvious reason for a company wanting to 'go public' is to raise capital, but, there are other reasons too. Iannotta (2010) argues that in the company's view, an IPO could be seen as a means of increasing reputation, management compensation and lastly, provide acquisition currency. An IPO, on the other hand, does come with certain disadvantages such as extensive compliance costs as the company will get tightly monitored from regulatory authorities. The greatest direct cost is the fee paid to investment banks, which can range from 2% to 7% of the capital raised.

There are three main ways to price a security during an IPO, through an open-price (so-called book building), fixed price method, or auction. Most recently, investment banks use a hybrid approach by mixing the fixed-price and open-price methods (ibid). This price

setting mechanism of investment banks is a very important function as it provides information, especially prices, which are needed to coordinate efficient decision-making in the economy (Merton and Bodie, 1995). In practice this takes place in the Equity Capital Markets (ECM) division of the investment bank, which intermediates between clients wanting to sell securities at the highest price and between clients in the trading division who want to buy securities at the lowest price (Stowell, 2010). Apart from an IPO, an investment bank may raise capital for an already publicly listed company through a seasoned equity offer (SEO). SEOs can be a primary market offering, or often called follow-on offering, which involves issuing new shares (dilutive), or secondary market offerings, which does not involve issuing new shares (non dilutive) but instead reduces the existing position of the shareholders (Iannotta, 2010).

On the other hand, the Debt Capital Market (DCM) division provides financing for corporations and governments by issuing debt through bonds. These clients can either be classified as investment-grade or non-investment grade, depending on their evaluation from the major credit rating agencies – for example, Moody's credit rating agency classifies an investment grade issuer with a Baa or more, while Standard & Poor rates an investment grade issuer with a BBB- or more. Any lower rating than these thresholds classifies the issuer as a non-investment-grade and as a result their debt offering is referred to as a junk bond or high-yield bond (Stowell, 2010). The presence of credit rating agencies greatly assists the job of investment banks, in contrast to an equity issuance procedure, which involves more work and hence, receives greater compensation, as the client's creditworthiness needs to be determined by the investment bank (Iannotta, 2010). In addition, investment banks also provide 'securitization' to firms wanting to use their assets to raise debt in a process where the final securities issued are called 'asset backed securities' (ABS). Importantly, a trend emerged prior to the 2007/08 financial crisis, where many commercial banks securitized their loans, moving from the traditional "originate-to-hold" model, where banks made loans and kept them in their balance sheets, to a financially more exotic "originate-to-distribute" model, making loans but then selling them

to the market, as 'mortgage backed securities' (MBS) through the securitization process (Iannotta, 2010).

The other core activity of an investment bank is to provide advisory services during a merger & acquisition (M&A) and/or a corporate restructuring. During an M&A, the main task of an investment bank is to collect and evaluate information about the firms involved, suggest possible ways to structure the deal and to help their clients in the negotiation process (ibid). In general, the possibilities of an M&A include:

- (i) a sell side transaction, where a company or division is sold off or merged
- (ii) a buy side transaction where a whole company or division of the company is bought
- (iii) a restructuring of assets or debt
- (iv) a hostile acquisition/defense (Stowell, 2010).

In addition, investment banks also offer asset management services, which involves the professional management of investor's money or assets, where these investors may be families, financial institutions or even single individuals. This service can be broken down to 'traditional' asset management, also referred to as wealth management, and alternative asset management, which includes private equity funds, hedge funds and other investment firms investing in alternative asset classes (Iannotta, 2010). Fees paid to asset managers in this investment bank division vary accordingly to the type of asset class they deal with. For example, if dealing with an alternative asset class, fees range from 1% to 2% of assets under management, whilst additional fees are also charged based on the investment return, which is often in the region of 10 to 20% of the annual increase in the value of the assets. On the other hand, fees for equity investments are considerably lower, ranging from 1.75% to 0.1% (Stowell, 2010).

It should be noted that most investment banks also have large hedge funds incorporated in their asset management division, which are managed for the benefit of their clients but also for the employees of the bank itself. For example, Goldman Sachs' asset management division manages almost 20 hedge funds, and these funds invest in several

asset classes with differing strategies. Notably, JP Morgan manages the second largest hedge fund, Highbridge fund, which was valued at \$32.9 billion in 2008 (ibid). At the same time, many investment banks, such as Morgan Stanley, JP Morgan and Goldman Sachs, invest in private equity firms, taking part in standard private equity style investments such as leveraged buy outs and mezzanine financing. In the year ending in 2008, the asset management division of Goldman Sachs controlled \$24 billion of private equity assets (ibid).

As previously stated, investment banks offer wealth management services to families, individuals and institutional investors. They do not directly manage these clients' assets, but rather seek to aid investors who want to invest their money by giving them investment advice after understanding their preferences and risk tolerance. In certain cases, wealth managers are entrusted to invest on behalf of their clients who require them to balance risk and return based on each individual client's profile (Stowell, 2010). However, not any individual may gain entry to this wealth management service, as investment banks usually require clients to have more than \$5 million in their disposal for investment. In any case, most investment banks also offer individual investors that have a 'low' amount of disposal capital entry to retail advisors, who are offered investment opportunities in the asset management division.

The other service offered by investment banks in the trading division consists of proprietary trading, trading securities using the bank's capital, and brokerage, trading on behalf of clients (Iannotta, 2010). Generally, traders in this division focus on buying securities from institutional or individual investors and reselling these in the future at a higher price. When dealing with client-related trading, a trader also needs to help her client trade profitably. This sometimes even causes traders to accept losses in order to facilitate the client's objectives and increase trading volume, as otherwise the client may choose another bank if his/her aims are not met. On the other hand, proprietary trading takes place only for the benefit of the investment bank and these traders are viewed as competitors to the client-related traders (Stowell, 2010).

The research activity of an investment bank, overarches and supports all the aforementioned services – this type of research is referred to as the buy-side research and

mainly consists of providing the trading division with extensive reports in order to identify investment ideas and potential returns in a number of differing asset classes. At the same time, research is also provided to clients and is referred to as sell-side research – this type of research may consist of analysts creating models that forecast a company's future earnings based on a number of factors, such as cash flow, economic conditions and historical trends, which are then used to formulate an investment opinion for the interested client (ibid). Importantly, the research activity is separated from the core investment banking divisions by what commentators refer to as 'The Chinese Wall', in order to help mitigate conflicts of interest (Ianotta, 2010).

More precisely, the organisational structure of an investment bank is typically separated in a front office, middle office and back office each with differing duties and activities. The front office⁵ has a revenue generating role and can be distinguished in four main areas: sales, trading, research and structuring. The middle office⁶ consists of the treasury management, financial control and the finance division. The treasury provides the investment bank's funding, manages the bank's capital structure, and monitors the bank's liquidity risk. Financial controllers analyse the capital flows of the firm. The finance division is the main adviser to the senior management on important issues like controlling the firm's global risk exposure, profitability and the structure of the firms' various businesses (Lindberg, 1996). The back office⁷ involves data-checking trades that have been conducted, ensuring that they are reliable and valid. Many banks have outsourced these operations; however, every major investment bank has considerable amounts of in-house software, created by a technology team, which is in close cooperation with technical support (Pozsar, 2013).

⁵ For an extensive survey see McTaque, Jim (2005). Power Banking, *Barron's*.

⁶ For an extensive survey see Lindberg, Joanne K. (1996). Personal Banking, *The Business Times*, volume 11, issue 1.

⁷ For an extensive survey see Pozsar, Zoltan, Tobias, Andrian & Ashcraft, Adam (2013). Shadow Banking, *Federal Reserve Bank of New York Economic Policy Review*.

So far we focused on full service investment banks and bank holding companies, the latter being a product of the regulatory changes in the American financial sector, as already have noted (Liaw, 2006). Notably, amidst the 2007/08, Goldman Sachs and Morgan Stanley transformed into bank holding companies in agreement with the Federal Reserve so that they could get access to emergency liquidity. In effect, this means these financial institutions become subject to stricter regulation and supervision not just from the Securities and Exchange Commission (SEC) but other government agencies and the Federal Reserve, whilst also being committed to dramatically increasing their capital reserves (Sorkin & Bajaj, 2008). Therefore, a bank holding company operates both investment banking and commercial banking services but is subject to stringent oversight, similar to that of commercial banks. On the other hand, full service investment banks, also known as the Wall Street bulge bracket, offer full investment banking services, such as underwriting, M&A advisory, research and trading but have also come under stricter regulatory changes after the crisis. The third types are known as boutique investment banks, such as Greenhill and Lazard, which have smaller personnel and will not offer all the services offered by full service investment banks but specialize in a particular service or type of client (Liaw, 2006)

2. Investment Banks and IPOs

We begin by reviewing the literature on why companies choose to go public. Brau (2010) separates the extant literature into 12 groups of theories:

1. Optimal capital structure

The work of Modigliani and Miller (1958) laid the foundations for the theory of the optimal capital structure. Expanding this work, Baxter (1967) and Stiglitz (1969) argued that too much reliance on debt increases a firm's bankruptcy costs and can end up lowering the value of the firm. This led to firm's managing their financing with a mixture of debt and

equity, which lowered their weighted average cost of capital (WACC) and maximized the value of the company. With the theory of the optimal capital structure in hand, studies such as Kraus and Litzenberger (1973) explained that companies will trade off debt over equity, if it will minimize the WACC. In turn, Williamson (1988) argued that in some cases financing through external equity is the best option; thus, a company will choose to go public if the capital raised through an IPO will decrease the overall cost of financing.

2. Overcome borrowing constraints and increase bargaining power

Pagano et al (1998) argue that access to financing through equity issuance, rather than debt financing or venture financing, is the most obvious reason for a firm to go public. Relying on the work of Basile (1988), Pagano et al (1998) argue that access to public markets reduces a firm's cost of borrowing. At the same time, these authors claim that a higher bargaining power may also help a firm to lower their cost of credit. Hence, through an IPO, firms can increase their bargaining power in relation to banks and increase their company's transparency to investors.

3. Asymmetric information

The work of Myers and Majluf (1984) explain that based on the asymmetric information between managers and investors, there is a 'pecking order' of financing of using first internal equity, then debt financing and lastly, external equity. The authors argue that investors perceive an external equity issuance as a negative sign, where the management actually believes the firm will be overvalued. Under this logic, a firm's management will first use all other financing options first – i.e. internal equity and then debt, and only use external equity as a last tool. Hence, the hypothesis of this framework suggests that managers choose to go public only when they have used their retained earnings and gone over their debt capacity (Brau, 2010).

4. To establish a market price

The work of Zingales (1995) suggests that firm managers choose to go public in order to establish a market price in order to cash out or even sell out at a potentially higher market value. The academic literature surrounding this framework maintains that companies that go public will become a target, allowing for a quick transfer of control, as the original owners are perceived as being risk-averse and have an incentive to sell the firm after establishing a higher market price.

5. Investment harvesting

Black & Gilson (1998) argue that in cases where an investment bank conducts an IPO for a venture capital backed firm, an equity issuance becomes a good strategy for the original owners (entrepreneurs) to regain control of their firm from the venture capitalists and for the venture capitalists to 'exit' and reap their profits – i.e. harvest their investments.

6. Dispersion of ownership

According to the study of Chemmanur and Fulghieri (1999) IPOs broaden the ownership base of a company because public markets provide lower information-production costs and increase the share liquidity of a company. As such, studies have shown that an IPO decision is a balance between diversification benefits and private benefits (Veronesi, 2009). As a result, Bodnaruk et al (2008) provide empirical evidence that shows that firms with less diversified owners are more likely to go public.

7. First-mover advantage

Maksimovic and Pichler (2001) argue that going public adds value to the firm and increases its reputation to investors, customers and creditors, as evidence shows that the first firm to

go public in a particular industry generates a 'first-mover advantage'. In addition, taking into account that IPOs generally are underpriced, Demers and Lewellen (2004) argue that IPOs offer a strategic move to firms looking to increase their reputation. Moreover, Pagano et al (1998) claim that listing on a major public market increases a firm's reputation and might attract the attention of portfolio managers.

8. Acquisition currency

An IPO according to Brau et al. (2003) is an important source of "currency" creation as the process generates shares for a firm that may use these shares in the future to acquire other companies or in a stock deal when being acquired.

9. Create analyst following and increase monitoring

In general, a favourable analyst recommendation increases a firm's reputation and creates shareholder value (Bradley et al. (2003). The earlier work of Pagano et al. (1998) claims that an IPO increases the transparency of the firm's decisions as a public firm gets monitored by a number of regulators. Therefore, an incentive exists for a firm to go public in order to receive monitoring and instigate analyst coverage (Brau, 2010).

10. Windows of opportunity

The work of Ritter (1991) and Pagano et al (1998), amongst others, suggests that sometimes the price of IPO shares get over-inflated because of strong investor demand. This creates a 'window of opportunity' for IPO insiders to issue over-priced shares. These windows are fuelled by information asymmetry and it is believed that firms actually conduct IPOs after a good news release (Lucas & McDonald, 1990) or when public companies in the same industry are trading at high volume.

11. Stock based compensation

The work of Holmstrom and Tirole (1993) show that once a firm goes public, it has the option to offer more stock-based compensation programs than it could when it was still a private firm.

12. Herding behaviour

Ibbotson & Jaffe (1975), and Ritter (1984) argue that companies herd when new equity is issued. In particular, Maksimovic and Pichler's (2001) model predicts that herding takes place when there is significant entry risk, however, herding is not present in industries that deal with technology risk.

There is vast academic literature on the puzzling empirical and theoretical aspect of IPOs and their link with investment banks. Here we will discuss the most important anomalies present in the IPO literature: the initial IPO under pricing, the "hot" IPO phenomenon, the long run under performance of IPOs and lastly, the so called "7% spread" associated with the compensation of investment banks during an equity issuance.

Initial under pricing

The initial under pricing refers to the abnormal positive return between the initial IPO offering price to the first day closing price. Ibbotson's (1975) study using a sample of 120 IPOs from 1965 to 1969 is regarded as the first paper providing evidence of this phenomenon. Specifically, his research finds that on average the initial return was 11.4% for a period of a month after the IPO. A number of studies followed his paper supported this research. Most importantly, Ritter and Welch (2002) examine 6,249 IPOs from 1980 to 2001 and find that the average first day return is 18.8%. Moreover, the same study indicates that

around 70% of the IPOs end with a closing price greater than the offer price, with only 16% of the IPOs experiencing a zero first day return. However, this observed initial under pricing varied at different periods of time; for example in the 1980s, the average IPO under pricing was around 7%, but in the period 1990-1998 this increased to 15%, whilst in the internet bubble period from 1999-2000, under pricing was as high as 65% (Gajewski, 2006).

Although these previous studies examined the American IPO market, a number of other studies confirmed that this under pricing phenomena is present in almost all markets, even though the level of under pricing is different from country to country. For instance, Brazil exhibits an average return of 78.5% (Aggarwal et al. 1993), the return in Hong Kong is calculated at 17.6% (Kim et al, 1991), while in Europe, initial returns vary from 12% to 39% (Kunz and Aggarwal, 1994)

This under pricing phenomena is an important field that needs to be examined as the end result is costly to the firm owners as significant amounts of money are 'left on the table'. For example, during the peak of the internet bubble, new companies that conducted IPOs could have raised 79\$ million more had their offering not been underpriced; whilst, the amount 'left on the table' from 1980 to 2013 totalled to \$143 million (Ritter, 2013). So what explains this under pricing, and why do issuing firms not care about the money left on the table? A rich literature is present that uses a number of different theoretical models to explain this phenomenon⁸. In general, the most prominent theories can be grouped into four broader sections: asymmetric information, institutional reasons, behavioural approaches or control considerations (Ljungqvist 2004).

Ljungqvist (2004) claims that the most well-known are the asymmetric informational based explanations, which argue that under pricing is a result of information asymmetry between the underwriters (investment bank), the issuing company and the investors. Famously, the study of Rock (1986) on the 'winner's curse' attempts to explain the initial under pricing phenomenon by arguing that there two group of investors present during an IPO; uninformed investors, who will buy shares in all IPOs, whether they think the issue is

⁸ For an extensive survey see Ljungqvist (2004), Ritter and Welch (2002) and Ritter (2003)

under priced or overpriced and informed investors, who will attempt to buy shares only when they believe the issue is under priced. This practically means when an IPO is under priced, uninformed investors will only receive part or none (in extreme cases) of the issue as they will be crowded out by informed investors, whilst, when an IPO is overpriced uninformed investors have the 'winners curse' as they will 'win' the whole issue. The underlying result here is that companies conducting an IPO under price their issue on purpose as it ensures continued participation of uninformed investors (Ljungqvist, 2004).

On the other hand, Baron and Holmstrom (1980) claim that investment bankers are those with the advantageous knowledge about the issue being offered and deliberately under price in order to favour their buying clients. This principal-agent model was further developed by Ritter and Loughran (2003) who point out to the 'dark side' of investment banking and argue that there is a clear potential for agency problems with the underwriter (investment bank) and the issuing company. For example, an IPO is a direct way of transferring wealth from the issuing company to investors and this may give rise to rent-seeking behaviour where investors compete for underpriced stock by giving investment banks side payments in the form of excessive unrelated trading commissions, as was the case with Credit Suisse First Boston that was fined \$100 million in 2002. Another example of a principal agent problem arising in this context is the practice of 'spinning', where investment banks give underpriced stock to company executives in order to win potential investment banking business (Ljungqvist (2004).

The last model based on asymmetric information, claims that there is an informational asymmetry between investors and the issuing company, where the latter having a better information about its present value, under prices its own issues as a way to signal its value. Even though this is costly and leaves money on the table, this signalling provides the issuer the opportunity to 'leave a good taste in investors' mouth' as the issuer will most likely need to return to the market at a later date (Ibbotson, 1975).

Moving to institutional based explanation of under pricing, based on Logue (1973) and Ibbotson (1975), the main reason behind an IPO under pricing is to avoid a future lawsuit from investors. Tinic (1988) argues that under pricing is intentional and acts as an

insurance against law suits, which is both expensive and damaging to the issuers reputation. Indeed, Lowry and Shu (2002) find that from 1988 to 1995, 6% of companies that went public in the US were sued with damages averaging 13.3% of the capital raised. Another partial explanation given by this stream argues that IPOs are underpriced in order to lower tax obligations.

Furthermore, behavioural based explanations, such as Welch's (1992), argue that an investor's demand for the issue also depends on the demand of other investors. As a result, cases arise where some investors who normally would buy the initial offering may decide not to when they see that the issue is not strongly demanded by other investors. To avoid this problem, issuing companies under price their IPO to attract the first few buyers, thereby inducing a positive "cascade" effect. The most important explanation based on this behavioural perspective, is the work of Ritter and Loughran (2002). These authors argue that issuers do not mind 'leaving money on the table' because they realise that they will gain back this wealth as prices will increase in the aftermarket. This induces a rent seeking behaviour from investors that will seek under priced stocks from investment banks, as discussed under the principal agent theory.

Under the ownership and control perspective, there are two opposing explanations on the occurrence of under pricing. The first view developed by Brennan and Franks (1997) argues that under pricing gives managers the opportunity to keep their control and avoid monitoring by an outside shareholder, as a low initial price will mean excess demand and effectively restrain investors to smaller stakes in the firm. On the other hand, Stoughton and Zechner (1998) argue that under pricing will attract large outside investors who will be able to monitor the firm's managers. The difference is here is that, Stoughton and Zechner (1998) view monitoring as a public good that will benefit all the shareholders and optimize the efficiency of the company.

Long term under-performance

Another anomaly in the literature points out to the long run performance of IPOs, which has gained considerable debate amongst academic circles, with an overall inclination to believe that in the long run IPOs underperform. For example, Ibotson (1975) and Jenkinson & Ljungqvist (2001) examining the American IPO market, report that IPOs underperform by an average of 1% per month over four years; specifically, both studies find that in the first year a positive performance is found, followed by three years of negative performance and a return to positive performance from the fifth year. Similarly, Ritter (1991) finds in his study of 1,526 US IPOs between 1975 and 1984, that IPOs underperform by almost 35% during a three year period. In addition, Levis (1993) examining the long term performance of 483 IPOs from 1980 to 1988 in the UK, found an 8.31% under performance.

The first study to explain the long term underperformance of IPOs was conducted by Miller (1977), who asserts that in an IPO, the main buyers are the investors that are optimistic about future prospects of the IPO firm. However, due to uncertainty about the valuation of an IPO, there will be a range of different judgments given by the optimistic and pessimistic investors. Since the shares will tend to be purchased by the optimistic investors, the offering price will be higher than the "fair" price. As time passes on and more information becomes available, the stock price will approach (will decrease to) the "fair" price. Thus, Miller (1977) predicts that IPOs, will underperform in the long run. Indeed, supported by empirical evidence, Loughran and Ritter (2002) infer that investors are too optimistic about the prospects of a firm issuing equity for the first time. In fact, an earlier study by Loughran, Ritter and Rydqvist (1994) claims that companies tend to time their IPOs to coincide with a period of increased optimism, which is consistent with the findings of Lee, Shleifer, and Thaler (1991) that prove that more companies go public when investor sentiment is high. The main idea is that investors in the short-run overshoot fundamental value and in the long run prices revert to the correct level (Ritter, 2003).

Hot and cold IPOs

Over the past 30 to 40 years, a recurring pattern of cycles in both the volumes and the average initial returns of IPOs have been observed leading academics to characterize periods of hot and cold markets (e.g., Ibbotson and Jaffe (1975)). The “hot IPO” markets have been characterized in the literature by an unusually high volume of offerings and abnormal high initial returns. On the other hand, the “cold IPO” markets have relatively low initial returns and significantly lower issues. In addition, Loughran, Ritter and Rydqvist (1994) note that there is a pattern for market peaks to coincide with high volume of issues, whilst cold IPOs takes place at the end of the high IPO volume period. Ibbotson and Jaffe (1975) were first to document this pattern from 1960 to 1970, with Ritter (1984) supporting this evidence, showed that a similar pattern existed from 1960 to 1982. Specifically, Ritter (1984) finds an unusually high average initial return of 48.4% during the “hot issue” market in 1980 to 1981 and a relatively low average of 16.3% for the “cold issue” market in the remaining IPOs from 1977 to 1982.

Early theoretical models of based on signalling, characterize hot markets as periods when a greater number of high quality firms chose to go public (Allen and Faulhauber, 1989). In these models, firms are drawn into the hot period because the issuing prices are closer (higher) to their true valuations and hence, are able to avoid the undervaluation of cold markets. More recent theories analyze the decision to go public by highlighting how the IPO market can vary sharply over time, predicting that hot markets occur when a group of firms from a particular industry are waiting for a technological innovation to take place. For example, information about the size of the market or quality of a new product is revealed when firms go public, and if this news is favourable, other companies in the same industry will choose to also go public (Benveniste, Busaba and Wilhelm, 2002). More recent literature suggests that hot market firms are lower quality firms because they appear to have worse stock returns (Loughran and Ritter (1995)). This literature tends to view hot markets as the result of wild bullishness on the part of irrational investors (Loughran and Ritter (1995)).

Investment banking and the 7% spread

The last anomaly discussed here is the bizarre level of compensation underwriters receive, after Chen and Ritter (2000) highlighted the fixed compensation spread of 7% for almost all moderate-sized IPOs in the US. Interestingly, underwriting fees are not as fixed in Europe as they are in the US. Instead, in Europe, fees are between 3 and 5%, and sometimes are as low as 1.25%; and only 12% of European IPOs vary at the median value of 4 %, while 76% of US IPOs have a 7% spread (Meoli et al, 2012). Chen and Ritter (2000) find that in the American IPO market, this “7% solution” is widely adopted regardless of offer size and underwriting costs. Moreover, Hoberg (2007) argues that underwriters who persistently under price IPOs have a superior market share growth, instead of being punished for leaving money on the table. Such empirical evidence is inconsistent with most of the asymmetric information-based models, such as the winner’s curse and signalling theories we discussed earlier. In fact, rather than a perfect competition, Liu and Ritter (2011) argue that the underwriting market in the US is better conceived as a series of local oligopolies. On the other hand, Hansen (2001) claims that this phenomenon is an efficient contract that best suits the IPO market. However, this study is unable to justify the 3% gap between European and US fees. A more recent study by Abrahamson, Jenkinson, and Jones (2011) report that that, during the period 1998-2007, the 7% spread has become an even more deeply entrenched feature of U.S. IPOs.

Investment Banks and Underwriting

Highlighted by Akerlof (1970), reputation is valuable to both sellers and buyers, and especially important to investment banks. Therefore, it should be surprising that higher underwriter reputation is associated with lower IPO under pricing (Hoberg (2007)). At the same time, underwriters should have reputational incentives to minimize under pricing as excessive IPO under pricing should lead to: i) a loss in market share for the underwriter (Dunbar, 2000) ii) a reduction in the likelihood that the underwriter is employed by the firm

in subsequent offerings (James, 1992) iii) a decrease in the lead underwriter's market value (Nanda and Yun, 1997). In contrast, recent studies by Beatty and Welch (1996) and Cooney, et al. (2001) find that IPO under pricing is positively related to underwriter reputation, while Logue et al. (2002) find no relation at all between underwriter reputation and under pricing.

Smith (1992) finds that Salomon Brothers experienced a significant loss in underwriting market share following its 1991 bond trading scandal. Similarly, Beatty, Bunsis, and Hand (1998) provide indirect evidence on the value of underwriter reputation by finding that underwriters who are subject to SEC investigations experience large declines in IPO market share. Additionally, Hanley and Hoberg (2012) find that underwriters who have high exposure to litigation risk experience economically large penalties that include a loss of overall market share. Finally, apart from underwriter market share, another benefit to reputation is suggested by the findings of Fernando, May, and Megginson (2012), who examine the collapse of Lehman Brothers and present evidence that investment bank relationships are valuable.

SEOs

Already publicly listed companies can choose internal sources as well as external sources of funding to finance new projects. Internal sources of funding mainly refer to profit or retained earnings and external sources of funding mainly refer to debt or equity financing. The most developed theory that explains the choice of debt over equity, or vice versa, is suggested by Myers & Majluf (1984), who base their explanation on the adverse selection model. This pecking order theory claims that if the firm's management believes that the current market price is low, the firm will not issue undervalued stock, as that will dilute the shareholder's value. On the other hand, if the management believes that the current market price is high, then the firm will perform a SEO only if debt financing is not possible. Rational investors, who know the dynamics behind the firm's decision, interpret that a SEO means that the management believes that the stock is overvalued; hence, the price of the stock will decrease. On the other hand, a SEO, which will raise new capital, could also be interpreted to the market that the firm is looking to undertake a new project

or expand its services, and this could lead to a positive announcement effect (Ritter & Welch, 2002). In general, the theory suggests that firms should first use internal sources of financing, debt financing as a second choice, and equity financing as a last resort.

Empirical studies in general argue that if the firm can convince the market that there is a good reason for issuing new equity, then the announcement reaction will be positive. For instance, examining the size of a firm's market value-to-replacement cost (q), which is a good approximation of investment opportunities, Jung, Kim and Stulz (1996) find that a larger q will mean an insignificant/less negative market reaction. At the same time, if the overall economy is in an expansionary part of its business cycle, then the market reaction will be less negative (Choe, Masulis and Nanda (1993). Ritter and Welch (2002) conclude that the larger the SEO issue, the more negative the resulting announcement effect.

However, Ritter (2003), reviewing a large literature on the impact of SEOs, finds an average 72% return in the year before the SEO announcement, a two-day return of -2% around the announcement date, and an underperformance of about 5% five years after the SEO. An explanation for the negative announcement effect based on the signalling literature claims that there is always information asymmetry between the seller and the buyer of the shares, and firms tend to sell the new shares when the cost of information asymmetry associated with the issue is low. Hence, firms might be able to "time the market" to take advantage of a period of low cost of information asymmetry which is also sometimes called a "window of opportunity" to conduct equity issue. Hence, the negative market reaction might mean that investors believe that the SEO event conveys a message that the new issue is overvalued (Leland & Pyle, 1977).

M&A

In general, Servaes and Zenner (1996) report that inexperienced acquirers are more likely to hire investment bank advisors in complex acquisitions, when the target operates in many different industries, and if the acquirer purchases a publicly traded target. One function of a financial advisor is to help influence the outcome of a merger in the client's

favour. This could be accomplished in two ways. First, the advisor might identify a value-creating merger for the client. Rau (2000) refers to this function as the superior deal hypothesis. The other way an advisor works for the benefit of the client is by negotiating favourable terms, given that a merger has already been identified. Kale, Kini, and Ryan (2003) refer to this second function as the strategic bargaining hypothesis.

Recently, Bao and Edmans (2011) find evidence of advisor expertise in the form of persistence in performance. They measure the cumulative abnormal returns (CAR) of an advisor bank's clients during the announcement of the clients' acquisitions and find that the top percent of advisor banks outperform the bottom percent by 0.92 percentage points over the subsequent two years. Kale, Kini, and Ryan (2003) examine the relative reputations of acquirer and target advisors in tender offers, where an advisor's reputation is defined as its market share in the year of the merger. They find that hiring a more reputable advisor can help an acquirer capture a larger share of merger gains, consistent with the strategic bargaining hypothesis.

Another function of an advisor is to facilitate a merger by ensuring its completion. Rau's (2000) deal completion hypothesis suggests that some acquirers are driven by empire-building considerations and use advisors to negotiate completion and "rubber-stamp" the merger. Rau finds that an advisor's current market share is positively related to its prior merger completion ratio. Bao and Edmans (2011) also find that acquirers select advisors based on market share and not prior clients' performance. Both papers argue that the evidence is consistent with the deal completion hypothesis.

However, McLaughlin (1990) argues that the incentives of advisors can create conflicts of interest with their acquirer clients. Specifically, he finds that in a typical merger advisory contract, more than 80% of the advisory fee is paid only if the merger is completed. The author speculates that the advisor's concern for its reputation might prevent it from proposing and pursuing value-destroying deals for its clients. Rau (2000) notes that in his sample, an average of 55% of a top-tier advisor's fee is contingent upon completion of the transaction, and he identifies a positive relation between an advisor market share and the amount of contingent fees. He cites this fee structure as an

explanation for why advisor market share depends on merger completion and not prior client performance.

Extant empirical evidence on the fee structure of advisory contracts concludes that the prevalence of contingent fees creates incentives for advisors to pursue both a high number and proportion of completed mergers, consistent with the facilitating role of an advisor as well as the deal completion hypothesis. However, the evidence seems to conflict with the interests of acquiring shareholders seeking to maximize acquirer value, as well as with an advisor's role as a value-creator. It may not be altogether surprising that evidence of advisor value maximization incentives is weak, since an acquirer may not be interested in value maximization. A robust body of literature discusses the potential agency problems associated with the separation of firm ownership and control (e.g., Jensen (1986)

Overall, although a few studies find evidence that certain advisor characteristics are associated with value-creation, there is little direct evidence on whether prior completion record is associated with value-creation. There are also studies that suggest that advisors are hired to ensure merger completion, regardless of whether the merger creates or destroys value. This argument is supported in part by the evidence that advisor compensation is highly contingent on merger completion, and also with the view that mergers are a vehicle for entrenched managers to build empires at the expense of shareholders. Hence, the main findings in the literature so far are somewhat puzzling: acquirer firms do not seem to benefit from hiring any banks or even hiring top-tier banks (Stouraitis, 2003).

3. Benefits, challenges and impact on development

Academic literature on finance suggests that there are five channels where financial intermediaries, such as investment banks, may have an effect on economic growth: providing information a, monitoring investments, managing risk, mobilizing savings and fostering exchange of goods and services (Levine 2005). Investment banks provide information to market players within the capacity of M&A advisory services, as these

financial institutions specialise in information generation and value determination of companies. This advisory service can lead to a more efficient company taking over a less efficient company, which in turn adds efficiency to the economy (Ilanotta, 2010). Not to mention that before IPOs, investment banks distribute general information about the company to the public, reducing information asymmetries and adverse selection costs (Morrison & Wilhelm, 2008; Shroder et al, 2011).

Moreover, investment banks are said to be able to manage risk by producing financial instruments such as derivatives or structured financial instruments that are able to hedge risk. These financial instruments allocate the risk to agents who are willing and are most capable of handling them. In addition, the securitisation of assets and mortgages reduces liquidity risks and distributes risks by enabling many investors to buy the different tranches associated with varying risk levels (Shroder et al, 2011). The above is referred to as the cross-sectional risk diversification that investment banks provide to the financial market (Levine, 2005). Furthermore, financial intermediaries such as investment banks, also provide intertemporal risk diversification by investing in long-term assets (ibid). Lastly, by providing services such as securitisation, investment banks are able to reduce liquidity risk.

However, the financial crisis of 2007/08 exposed a number of very significant challenges and risks associated with investment banks and their activities. The first major challenge the crisis unveiled was that investment banks had become 'too big to fail' (TBTF). Saunders and Walter (1994) argue that a bank becomes TBTF when its failure could create a severe credit freeze on the financial market, and since the bank is simply too large and too interconnected with other banks on the market; its failure can lead to market contagion where other banks may fall with it. This contagion could lead to long-standing and severe consequences for the whole economy. The cost of letting the bank fail may thus exceed the cost of saving it.

The problem of banks that are too big to fail also creates a moral hazard issue. Grant (2010) states that this safety net creates adverse incentives when a bank's balance sheets have been weakened by financial losses. If the bank knows that it will be saved due to it

simply being 'too big to fail', it may have incentives to pursue excessive risk-taking to receive higher returns. Similarly, deposit insurance can push this excessive risk-taking even further since depositors will not rush to withdraw their funds even though the bank may be in a troubled situation. Stiglitz (2010) argues that if the bank succeeds with these risky investments, the managers and shareholders take the profits, but if they fail, it is the government and tax payer who picks up final tab. "The major players are simply too large to fail, and they, and those who provide them credit, know it (Stiglitz, 2010, p. 346). Wieandt and Moenninghoff (2011) argue that TBTF banks are not a new phenomenon. They use the American rescues of Continental in 1984, First Republic in 1988, and the rescue of the hedge fund LTCM in 1998 as evidence of a TBTF doctrine in the USA prior to the recent financial crisis.

Wieandt and Moenninghoff (2011) take the failure of the investment bank Lehman Brothers as an appearance of TBTF in the recent financial crisis. The collapse of Lehman Brothers sent contagious shockwaves throughout the global financial system, effectively proving that there indeed exists a TBTF doctrine. The market could not absorb the losses on its own, proving an unbalanced equilibrium. Since Lehman Brothers was not saved, Wieandt and Moenninghoff (2011) argue that market participants understood that other large investment banks would not be either. This caused a loss of confidence among banks and created a credit and liquidity freeze, causing asset prices to decline. Interestingly, the TBTF issue seems to have grown even further after the recent crisis. Stiglitz (2010) claims that both the Bush and Obama administrations have allowed collapsed banks to be taken over by bigger banks, in turn creating even larger TBTF banks. That consolidation of financial institutions further fostered the TBTF phenomenon rather than solving it. Grant (2010) states that the USA a few years ago only had 11 banks that regulators considered to be too big to fail but the list has now grown to 21 banks. Furthermore, Grant (2010) argues that one thing we should learn from the recent financial crisis is that organizations can grow beyond management abilities. For US Senator Elizabeth Warren moreover, "we have a handful of giant banks in this country that were too big to fail in 2008, got bailed out by the

taxpayer and are now bigger than they were then, and are again loading up on risks” (Inskeep, 2014).

The TBTF problem consequently causes further issues such as power distortions. Herring and Santomero (1990) identify monopoly power as a concern when large financial conglomerates are allowed to offer a full range of financial products. The concern is that these conglomerates may be able to acquire and exercise monopoly power and create barriers to entry. Herring and Santomero (1990), however, reject this concern due to the increase of international competition across borders and technological development. In contrast to these views, Johnson and Marietta-Westberg (2009) provides empirical evidence that shows that institutions with both underwriting and asset management divisions tend to use their informational advantage to earn annualized market-adjusted returns at 7.7% more than their competitors that did not underwrite the IPOs. This is especially notable when there is little information available about the company that has been underwritten, and when the underwriter/asset manager belongs to a high reputation rank institution. Large financial conglomerates are thereby more likely to outperform smaller and specialized institutions, and become more powerful by establishing barriers to entry.

A concern identified by Herring and Santomero (1990) is that universal banks may exploit their access to the governmental safety net by using cross-subsidization. Large universal banks are generally more likely to receive official assistance when facing financial problems, compared to small banks. Thus, it is natural to be concerned that these banks may use their position to raise lower cost funds for their more traditional and stable banking departments and then transfer (cross-subsidies) these funds to their more risky activities to generate more profits. Herring and Santomero (1990) also identify the concern that large financial conglomerates can gain too much economic and political power, and thereby distort political decisions to their benefit.

A number of studies examining the link between financial development and economic growth report that credit matters for growth in the private sector and that financial development may predict economic growth (King and Levine, 1993). Countries with

larger banking systems and highly liquid stock markets are claimed to experience positive growth effects (Levine and Zervos, 1998). Therefore, if investment banks are able to increase stock market liquidity, then this can result in a positive effect on growth. The underlying problem with these studies is it is difficult to fully understand the direction of the causality; for example, it may be the case that financial development fosters growth, but growth may generate larger financial institutions. However, a number of studies that deal with this causality challenge still find that development in the financial sector results in a higher rate of growth (Rouseau and Wachtel, 1998; Levine, Loayza and Beck, 2000).

In particular, Loayza and Ranciere (2006) found that in the long run there is a positive relationship between financial development and growth; however, they reported that in the short run this relationship is negative as there is a trade-off between financial development and financial stability, as excessive financial innovation may lead to periods of volatility. Moreover, Rajan and Zingales (1998) found that industries that rely on external funding grow faster in financially more developed countries. In addition, countries with low financial development, which have industries that rely on external financing, are expected to experience the biggest increase in growth. Most importantly, looking at results from Beck et al (2008), Beck and Levine (2002) and Tadesse (2002), one can argue that investment banking, which is more prevalent in market based economies, is more important in financially developed economies while commercial banking has a superior effect on growth in financially less developed economies (Shroder et al, 2011).

In order to study and isolate the causal relationship between financial development and economic growth, a number of academic papers have used event studies. The findings clearly state that there is a positive relationship between financial deregulation and barriers elimination, with economic growth. Bekaert, Harvey and Lundblad (2005) found that the annual GDP per capital growth rate in countries that removed capital account restrictions and have high quality financial institutions, increased by an average of 0.5% to 1%. Henry (2003), examining twelve Latin American and East Asian countries which liberalised their financial system, found that growth indeed resulted from increased

investment. Lastly, Jayaratne and Strahan (1996) show that banking deregulation in 38 US states increased state growth by 0.6% to 1.2%.

The 2007/07 global financial crisis has led policymakers and academics to re-evaluate the effect of finance on the economy. For example, Wolf (2009) points out that over the a 30 year period the US financial industry grew six times quicker than the country's GDP, whilst Rodrick (2008) questioned the very usefulness of financial innovation. Indeed, some research shows that financial development has an insignificant or even negative impact on the economy beyond a certain economic threshold. This idea is hardly new as Minsky (1974) and Kindleberger (1978) argued strongly about the relationship between finance and macroeconomic volatility using the notions of financial instability and financial manias. Apart from volatility, Tobin (1984) argued that a large financial industry may even become inefficient by 'stealing' talent from other more productive sectors of the economy. More recently, Rajan (2005) argued that there are significant dangers in the growth of the finance industry and predicted the impending financial meltdown.

The past few years, researchers have argued that the level of finance is only good for an economy up to certain threshold, implying a non-linear or specifically an inverse U-shaped relationship between financial and economic development. For example, Arcand et al. (2012) examining over 100 developed and developing countries, showed that finance begins to exert a negative effect on economic growth for high-income countries when the level of private credit to GDP reaches 80-100%, even when considering for banking crises, regulation and institutional differences. In a similar vein, Cecchetti and Kharoubi (2012) analysed 50 developed and developing nations and calculated this threshold at 90% of GDP. The authors h claimed that the faster the financial industry grows, the slower the economy grows, as the financial industry competes with the rest of the economy for scarce resources.

The aforementioned studies do not always account for the fact that these financial institutions often go beyond traditional intermediation; indeed, as this paper explains, current investment banks increasingly focus on insurance, wealth management, proprietary trading and other income generating services. As Beck (2011) points out, taking

in the extended scope of the activities of investment banks, the recent literature examining the non-linear relationship between finance and growth is not fully in line with the reality of the modern day financial industry. Indeed they do not take into account volatility that could arise due to trading that actually drives asset price bubbles, as shown by the recent financial crisis. Moreover, taking into consideration the way in which investment managers are being remunerated, Rajan (2005) makes the point that intense competition could lead these managers in accepting excessive risk and adopting a herding behaviour, which would push prices away from their fundamentals and create the need for a sharp re-balancing , leading to the bursting of the asset bubble.

In terms of the effects of financial development on employment, the study of Gine and Townsend (2004), conducted between 1976 and 1996 in Thailand, provided evidence that financial development indirectly moved an important part of the workforce from the agricultural sector to urban centres, increasing the average household income up to 34%. More recently, Pagano and Pica (2012), find that financial expansion directly increases employment growth by 0.23% to 0.83%. The particular research also states, that the positive effects on employment appear only for economies on first stages of development, not for those already being in the stage of growth, with the profound example of OECD countries, which are excluded from these results. However, the effects of financial instability, in the form of crises, cannot be ignored; Reinhart and Rogoff (2009) estimated that on average a banking crisis raised unemployment by 7%, whilst recovery to pre-crisis does not come quickly. Specifically, during the Great Depression of the 1920s, unemployment levels increased by 20%. Therefore it seems that financial exposure moves highly positively correlated with volatility of markets and systemic risk, even in the employment sector. Besides, the effects of such financial crises are often unevenly experienced, with those already disadvantaged taking the larger cost. While it is tempting to draw on Schumpeter (1954) and conceptualize this instability of finance during a crisis, in regards to employment, as a 'creative destruction' process where old industries vanish and new more productive ones form, it is widely recognised today that financial innovations are not on a par with other types of innovations and may lead to non-creative destruction,

hence calling for appropriate regulation (see below). The naturally unstable nature of financial innovation, may act as an increasing factor of unbalancing the financial equilibrium, whereas the stability and control needed to reverse it, could be provided by norms, rules and restrictions.

4. The 2007/08 crisis and the role of investment banking

The academic literature concerning the recent financial crisis in this literature review unanimously argues that an American housing bubble was at the centre of the crisis. White (2010) states that the bubble was caused by allowing under-qualified households to commit to residential mortgages well above the market value. He argues that all market participants had overconfidence in housing prices continuing to rise and that the heart of the problem was the commercial banks' overly excessive sub-prime lending to underfinanced households. These sub-prime mortgages were in many cases repackaged into AAA-rated securities and sold to insufficiently cautious investors. Calomiris (2010) sees the problem of credit rating agencies, "whose opinions had been at the heart of the capital standards arbitrage that allowed banks to back subprime mortgages with so little equity capital". Stiglitz (2010) says that the rating agencies played a critical role by converting C-rated sub-prime mortgages into A-rated securities, thus allowing these securities to be held by pension funds and ensuring the continuous flow of liquidity to the mortgage market. He continues by identifying the flawed incentives of rating agencies; rating agencies are paid by those they are rating and thereby have clear incentives to produce good grades for their customers and thus enable investment firms to engage in financial alchemy.

When the mortgage finance system finally imploded, it dragged much of the financial sector down with it due to relatively low capital levels (White, 2010). Tatom (2010) argues that the trend for mortgages to "originate and distribute" instead of "originate and hold"

changed whole mortgage process. He states that banks originated and served mortgages as before, but the next step was to sell the mortgages to investment banks and government-sponsored enterprises (GSEs) such as Fannie May and Freddy Mac. Stiglitz (2010) also attributes the problem of the repackaging of mortgages into securities as one of the main causes of the recent financial crisis and he questioned the move to securitization in the 1990s. According to Stiglitz (2010), in a system allowing securitization, banks do not actually hold the mortgages and they therefore only have incentives to produce pieces of paper that they can pass off to others, instead of making sure that those to whom they issue mortgages can repay them. The former Chairman of The Federal Reserve, Paul A. Volcker, agrees and states that one unintended consequence of securitization within commercial banks has been less attention to careful credit analysis (Volcker, 2008). Stiglitz (2010) suggests that banks should be required to keep a part of the risk from the loans that they originate, which in turn would encourage greater care in lending. Tropeano (2011) agrees and suggests that a model for securitization could be the German *Pfand-briefe*, i.e. that bonds issued by banks remain on their balance sheet. This *Pfand-briefe* is highly standardized and give banks incentives to care about the quality of loans and the creditworthiness of the borrowers.

Stiglitz (2010) argues that banks and other market participants failed to understand diversification and underestimated systematic risk. He believes that market participants thought that securities consisting of a large number of mortgages would not be able to fall more than ten percent in market value. Stiglitz (2010) also argues that when mortgages are sold as securities and bought by investment banks, repackaged, and partly sold to others; it creates information asymmetries and dilutes the knowledge of the underlying risk factors. Norton (2010) states that asymmetric information spread among banks resulting in them being unable to determine which banks were financially stable, and which banks held toxic assets and mortgage backed securities. Stiglitz (2010) agrees and states that one reason for the malfunctioning was the lack of transparency, which in turn created a credit freeze because no bank was willing to lend to another.

Securitization does, however, according to Kroszner and Strahan (2011), foster both liquidity and diversification. But they also argue that securitization expanded too far prior to the crisis. Kroszner and Strahan (2011) argue that the government sponsored this expansion by supporting GSEs such as Fannie Mae and Freddie Mac, and that this inflated the housing bubble even more. These GSEs subsidized securitization by offering credit at low prices and at the same time by purchasing securitized subprime mortgages in the secondary market. They go on by pointing out that the original Basel capital adequacy framework encouraged securitization of low-risk loans due to the fact that it treated all loans to businesses equally for the purposes of required capital. This led to it becoming attractive to securitize loans to highly rated creditors and hold lower-rated loans on the balance sheet, thus making fragile banks even more fragile.

Kroszner and Strahan (2011) state that an increased usage of securitization has transformed both the liability and asset side of bank balance sheets, which in turn has created greater inter-linkages among financial institutions. This gives rise to a highly interconnected financial system providing opaque distributions of risk. Wieandt and Moenninghoff (2011) argued that the recent crisis stems from a bank's interconnectedness with other institutions, its similarity to other banks, and its complexity. The many links in our present financial system have, according to Kroszner and Strahan (2011) introduced a contagion problem, allowing shocks to spread rapidly across the system. Kroszner and Strahan (2011) also state regulations focus too much on depository capital adequacy standards and too little on the interconnectedness of our financial system. Moreover, they argue that modern financial innovations have made the financial system more liquid with improved opportunities for diversification and lower cost of capital, but it has also led to risk concentrations to grow large, thereby increasing the potential for a crisis.

Heterodox economists argue that the aforementioned explanations only represent the surface of a much larger and deeper structural crisis due to a general wage stagnation and significant increase in inequality over the last 35 years on the back of a landscape

characterized by a shift towards neoliberalism policies⁹, coupled with globalization¹⁰ and financialization¹¹ (Stockhammer, 2012; Tridico, 2012; Palley, 2012; Rajan, 2010). In such an environment, these scholars argue that there was a historical stagnation of wages from the 1970s, which were balanced by a surge in credit to counteract this weak consumer demand and in parallel with a sharp deregulation of the financial industry and liberalization of the labour market, and an increased financialisation of households, These have engendered the conditions for a housing bubble. In this dynamic, households used debt to meet needs and chose to invest in housing, which is clearly seen by the composition of household credit, where mortgage credit amounted to 80% of the total in the US (Stockhammer, 2012).

As Rajan (2010) argued, “the political response to rising inequality – whether carefully planned or an unpremeditated reaction to constituent demands – was to expand lending to households, especially low-income ones. The benefits – growing consumption and more jobs – were immediate, whereas paying the inevitable bill could be postponed into the future. Cynical as it may seem, easy credit has been used as a palliative throughout history by governments that are unable to address the deeper anxieties of the middle class directly. [...] In the United States, the expansion of home ownership – a key element of the American dream – to low and middle income households was the defensible linchpin for the broader aims of expanding credit and consumption. But when easy money pushed by a

⁹ These policies are based on a market economy with minimum (if any) state intervention. Effectively this translates to policies including: trade liberalization, financial liberalization, capital account liberalization, privatization and deregulation.

¹⁰ Globalisation may be referred to as the increased integration between markets and nation states coinciding with the spread of technological advancement (Friedman, 1999), and leads to a dispersion of national state sovereignty towards transnational actors (Beck, 2000).

¹¹ We use Epstein's definition of “financialization [that] refers to the increasing importance of financial markets, financial motives, financial institutions, and financial elites in the operation of the economy and its governing institutions, both at the national and international level (Epstein, 2001: 1). It should be noted that this concept has been brought to academic attention by heterodox economists that use this concept to explain how “financialization has transformed how economic actors (households, workers, firms and financial institutions) perceive of themselves, what goals they pursue and what constraints they face” (Stockhammer, 2012: 40).

deep-pocketed government comes into contact with the profit motive of a sophisticated, competitive, and amoral financial sector, a deep fault line develops” (Rajan, 2010, p. 9) Indeed, prices in the US housing sector increased by 200% since 1997; most importantly, this was not a US isolated case but a trend seen in many developed countries. For example, in Ireland the growth during the same period reached 300%, in the UK and Spain this level peaked at 225%, whilst other major economies such as Australia, France, Netherlands and Canada experienced a 200% increase in housing prices in that period (Tridico, 2011).

It is also interesting that the hypothesis argued by Rajan in 2010, was made by John K. Galbraith back in 1954 in his seminal work “The Great Crash”, which discussed the 1929 depression in the United States. Unfortunately, his claim that “the bad distribution of income” was one of the most important factors of that economic downturn was quickly forgotten by economists and policy makers in the post-war decades (Galbraith, 1954). Important economists, such as Alan Greenspan, who was important in shaping the US economic policy from 1987 to 2006, maintained the belief that an increased availability of credit was an efficient market response by households to insurance against a falling income (Greenspan, 1996). However, as the financial crisis proved government policies were actually aimed towards low income earners or the so called, NINJA group (No Income, No Job (and) No Asset).

Moreover, Tridico (2011), in line with other heterodox economists, suggested that the gradual evolution of the labour market under a neoliberal paradigm marked an important causal pillar of the 2007/08 financial crisis. The argument goes that the past 15 years in Europe and 30 years in the US, there has been a gradual adjustment of the labour market towards wage moderation inequality. In parallel, a global process of financialisation occurred with important deregulated financial centers emerging in New York City and London, under the auspices of the Reagan and Thatcher governments. The general belief was that the global economy could sustainably grow through a financial globalization. However, recent research has suggested quite the opposite, as evidence shows that there is a significant positive relationship between financialisation and wealth inequality (Petit, 2009).

In general, heterodox economists argue that in fact the 2007/08 crisis was caused by endogenous factors that are part and parcel of the current globalizing economy. Through the process of financialisation and on the back of a global movement towards neoliberal policies, paralleled with wage stagnation and inequality, finance led growth through credit allowed households to maintain an illusionary wealth by creating assets bubbles, the latest of which was a major global housing bubble that when burst, sharply pushed housing prices to their fundamentals and caused the problems discussed earlier.

5. Regulation of investment banking

It has long been noticed that financial reform legislation has typically been adopted in the aftermath of a major economic crisis. This is particularly seen in relation to regulation affecting investment banking, which in turn has changed the trajectory of these financial institutions. In the US, the Glass-Steagall Banking Act of 1933 under President Franklin D. Roosevelt's New Deal, was put into practice after the stock market crash of 1929. This regulation imposed a strict legal separation between commercial bank activities and investment banking (Stowell, 2010).

The Act allowed commercial banks to take depositors money and be guaranteed by the government, but in return for this guarantee, commercial banks were prohibited from taking equity positions in firms and underwrite corporate securities (Ritter, 2003). Proponents of the Glass Steagall Act argued that this separation was crucial since it was the aggressive practices of commercial banks that encouraged reckless issuance of speculative securities and the credit expansion produced by these securities that followed, plunged the economy and inflicted severe losses to investors (Wilmarth, 2009).

Fast forward almost half a century and in 1999, the Glass –Steagall Act was repealed by the Gramm-Leach-Bliley Act (GLBA), overturning the requirement to separate investment banking activities from commercial banks. This led to the formation of the so

called, US-headquartered universal banks, such as JP Morgan, Citigroup and Bank of America. One of dominant justifications behind this decision was to provide a more stable business model and to allow US banks to compete with their international competitors, such as Credite Suisse and Deutsche Bank, which were historically never subject to similar regulations (Stowell, 2012). The general consensus however, from the point of view of US policymakers, was that the actual market distinctions between commercial and investment banking activities had steadily eroded to the point where the Glass Steagall Act became 'obsolete' (Congressional Research Service, 2010; Wilmarth 2002; Wilmarth 2009). Wilmarth (2009) indicates that in fact, due to growing competitive pressures in the financial markets, regulators created loopholes in the Act to allow bank holding companies to underwrite securities by creating "Section 20 subsidiaries". In the end, the Glass Steagall Act was modified to such a degree that a number of bank mergers between commercial and investment banks took place before the dissolution of the Glass Steagall Act even took place. A historical example is the merger of Citicorp and Travelers Group, where the later owned the renowned investment bank Salomon Brothers; this merger created Citigroup, the first US universal bank since 1933 (ibid).

Once the GLBA was put forward, coupled with a number of new state and federal laws that removed barriers for intrastate and interstate bank mergers, an extensive consolidation took place within the US banking industry. Indicatively from 1990 to 2005, more than 5,400 mergers involving \$5 trillion took place, doubling the assets held by the ten largest banks (Jones and Nguyen, 2003).

In the aftermath of the financial crisis, a spate of regulations has evolved which are expected to have an impact on multiple facets of the investment banks' business. The following exhibit provides a summary of these regulations along with the regions in which they are expected to have an influence and the areas of business that they are expected to impact (Tobias & Ashcraft, 2012).

While the modalities and scope of these regulations may vary, they share the same high-level objectives (through variations may be present):

- Increase customer protection
- End too big to fail bailouts
- Implement Early warning systems
- Improve Transparency and Accountability of Exotic Instruments
- Improve Corporate Governance
- Enhance Regulations on the Books

The evolving regulations impacting the investment banking industry are expected to have a two-fold impact on the performance of investment banks: The new regulations are expected to impact an investment bank's financial performance by restricting their revenue-generating potential, putting a strain on their cost structure, and reducing the returns of their different business lines. These regulations are also expected to impact the operations and business models of the investment banks by enhancing their reporting requirements; putting constraints on their structuring, clearing, and trading of derivatives; requiring a recovery and resolution plan; and putting limits on executive compensations while mandating more stringent governance standards (Tobias & Ashcraft, 2012)..

Even though politicians have discussed the problem of unified banking activities in several countries, it is only the US and the UK who have actually taken action towards such a regulation. Switzerland discussed a ban on investment banking activities, mainly due to the massive \$2.3 billion loss at the huge Swiss bank UBS in 2011, however, the Swiss parliament narrowly voted against this Glass-Steagall-like suggestion in 2011 (Thomasson and Taylor, 2011). In addition to regulations concerning unified banking activities, there have been a few changes at the European level. Tropeano (2011) names the creation of three new regulatory bodies: The European Banking Authority, The European Securities and Markets Authority, and the European Insurance and Occupational Pensions Authority. He also outlines EMIR, European Market Infrastructure Regulation, and Basel III as the main regulatory reforms that Europe has put forward after the recent financial crisis. However, none of the above stated laws considers a separation of commercial and investment banking. Obviously, European financial market regulators and politicians have

mainly taken another view compared to that of separating commercial and investment banking. They seem to have taken the view of Norton (2010), who concluded that a re-introduction of Glass-Steagall would appear to be unnecessary due to the high level of sophistication of today's institutional investors. Furthermore, he states that Glass-Steagall was an appropriate law for a unit-based, state-based banking system, which prohibited national banking, but in today's context of global banking it would be inappropriate and restrictive.

The United States Congress voted the Dodd-Frank Wall Street Reform and Consumer Protection Act into law on July 21, 2010 (Tropeano, 2011). The reform introduced several structural changes for the US financial markets, such as the Volcker rule, which was put forward by the Obama administration and prohibits banks from conducting private equity, hedge fund, or proprietary trading businesses, and thereby effectively separating these activities from commercial banks (Tropeano, 2011). In its original form, the Volcker rule would have reenacted many Glass-Steagall-like prohibitions. However, due to harsh political pressure the Volcker rule was eventually signed into law in a weakened form. The approved law limits commercial banks private equity and hedge fund business activities up to 3% of total assets while still prohibiting propriety trading. This type of trading is, hard to define with Tatom (2011) arguing that it will be hard to eliminate since this trading is usually conducted in many different sectors of the same bank. Thus, it is not possible to simply flip the switch of a department to stop the proprietary trading; the whole bank would need to be overhauled. Acharya et al. (2011b) argue that the definition of proprietary trading creates gray areas, which invites manipulation: "What is to prevent a bank from accumulating a large exposure in a given security or derivative in expectation of an eventual customer demand for the asset?" (Acharya et al., 2011: 201). These gray areas make it very difficult for regulators to know what is proprietary trading and customer driven trading. Additionally, the Volcker rule will not limit bank holding companies merchant banking activities and will allow them to invest in small business investment companies.

Furthermore, Calomiris (2010) stated that the Dodd-Frank Act does nothing to address one of the primary causes of the recent financial crisis, namely the politically

motivated government subsidization of mortgage risk in the financial system. Neither does it address the worst performing shadow banks of Fannie May and Freddie Mac, who, according to Acharya et al. (2011), were at the center of the crisis. Acharya, et al. (2011) state that the Dodd-Frank Act “..would have done little to prevent the enormous lending bubble specific to subprime mortgages in the US” (Acharya et al., 2011:. 53). Additionally, it is argued by Acharya et al. (2011) that restrictions such as the modified Volcker rule will provide a competitive disadvantage for American banks compared to their foreign competitors and in turn increase offshore banking. They conclude that international cooperation is needed when enacting restrictions such as the Volcker rule to prevent banks circumventing the restrictions. Calomiris (2010) argues that the time after severe financial crises puts political pressure upon regulators, making them commit to politically faulty regulations just because the public want something to be done. He argues that not enough time and effort are sacrificed to ensure that safe and sound regulations are put into practice that actually corrects the fundamental problems; instead theories of influential people dominate the reforms. The Volcker rule and restrictions that apply to one set of financial institutions could, according to Kroszner and Strahan (2011), also actually increase interconnectedness, reduce stability and make the market less transparent. They argue that restrictions such as these will just move the problem to other institutions and that this in turn would provide incentives for shadow banking and regulatory arbitrage. Kroszner and Strahan (2011) concludes that the new regulatory framework should not try to turn back the clock, but try to improve the stability of the modern interconnected financial system by minimizing regulatory arbitrage and increasing transparency. A reenactment of Glass-Steagall thus seems far away, even though some restrictions have been revived in the form of the modified Volcker Rule.

In the summer of 2010, the Independent Commission on Banking, chaired by Sir John Vickers was created to consider reforms to the UK banking sector. Their goal was to promote financial stability and competition, and to make recommendations to the UK government (ICB, 2011). The final report was released in September 2011 and has been

commonly referred to as the Vickers Report. It tries to ensure a new structure that will make it less costly and easier to resolve future banking crises. The Vickers Report advocates a so-called – “ring fencing” of a bank’s retail business from its wholesale business (Chambers-Jones, 2011). This ring fencing therefore aims to separate retail and wholesale banking activities, which bears a resemblance to the separation of commercial and investment banking. The report wants to ensure separate legal, economic and operational standards for both activities and to make sure that the bank treats the retail business as a third party and a separate entity (Chambers-Jones, 2011). Both businesses can however be owned by the same company (Chambers-Jones, 2011). This regulatory change would increase investment banks’ cost of borrowing to a total of 7 billion pounds for banks in the UK. Equating to about 0.1 percent of their assets (BBC News, 2011). Apart from the ring-fencing, retail banks should have a primary loss absorbing capacity of at least 17 percent and equity capital should be at least 10 percent of risk weighted assets (Chambers-Jones, 2011). The Vickers Report therefore goes considerably further than the capital adequacy requirements of Basel III.

Chambers-Jones (2011) states that the Vickers Report has been criticized for not going far enough, but that a reform is essential and that it does take steps in the right direction towards a safer and more effective system. However, Ghosh and Patnaik (2012) argued that the key recommendation of the Vickers Report, i.e. to ring-fence the retail business from the wholesale business, goes only mid-way in securing the objectives of stability and safety that the Report set out to achieve. In contrast to this, Kroszner and Strahan (2011) argue that Glass-Steagall-like restrictions such as those that the Vickers Report proposes could increase, not decrease, financial fragility through the creation of market incentives for regulatory arbitrage. Indeed, in the ability of the financial system to circumvent regulations that limits profit, it is not likely that regulatory firewalls will be effective, unless they are very thick. Heterodox scholars moreover emphasize the inherent limitations of regulatory reform in a system where the underlying fundamentals remain the same or are even exacerbated through business and sometimes public policy.

6. Conclusions, limitations, further research

While issues of conflicts of interest, moral hazard, too big to fail and even monopoly power have been extensively debated in literature, there exist two issues that have received limited attention.

First is the impact of investment banking on wider political economy related concerns such as income distribution and the concomitant concentration of potentially entrenched power structures in the economy. To the extent these favour the interests of finance versus industrial capital these may have deleterious effects on industrial and economic performance (Argitis & Pitelis, 2006).

On the other hand and related to the above, is the possibility of financial and the higher echelons of industrial capital reaching some sort of interconnectedness and fusion, as predicted by Hilferding (1910) in his book *Finance Capital*. This can lead to power structures such that 'regulatory capture' can become all but inevitable. With industry, finance and state intertwined, it is hard to see how competitive forces can function. It is important that these issues receive more attention, as indeed is the aim of the Foresight part of this project. For now it appears that current structures and incentives are such that the best hope one has is for enlightened self-interest by banks and leading industrialists-governments. As noted by no less than Hayek (1944), competition rather than self-interested restraint is by far the most potent means of achieving a well-functioning market economy. Current calls for regulation fail to address the challenge posed and implications of the aforementioned interconnectedness. It is important that this is and policies proposed do not limit their attention to the regulation of a sector by a disinterested arbiter, but rather account for the wider need for systemic change and systemic competition that helps also erode entrenched intertwined power structures, see for example Pitelis (2014) for such a proposal as well as Fessud deliverable 6.02.

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THE ABSTRACT OF THE PROJECT IS:

The research programme will integrate diverse levels, methods and disciplinary traditions with the aim of developing a comprehensive policy agenda for changing the role of the financial system to help achieve a future which is sustainable in environmental, social and economic terms. The programme involves an integrated and balanced consortium involving partners from 14 countries that has unsurpassed experience of deploying diverse perspectives both within economics and across disciplines inclusive of economics. The programme is distinctively pluralistic, and aims to forge alliances across the social sciences, so as to understand how finance can better serve economic, social and environmental needs. The central issues addressed are the ways in which the growth and performance of economies in the last 30 years have been dependent on the characteristics of the processes of financialisation; how has financialisation impacted on the achievement of specific economic, social, and environmental objectives?; the nature of the relationship between financialisation and the sustainability of the financial system, economic development and the environment?; the lessons to be drawn from the crisis about the nature and impacts of financialisation? ; what are the requisites of a financial system able to support a process of sustainable development, broadly conceived?'

THE PARTNERS IN THE CONSORTIUM ARE:

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