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## **An Economic Analysis of the *Bekaert NV* Insider Trading Case**

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### **Abstract**

This article contains a clinical study of Bekaert NV, the biggest insider trading case in Belgium. Up to now, no economic analysis of this case was ever conducted. It showed that Belgian courts currently seem to lack knowledge of the functioning of financial markets to assess an insider trading case. Therefore their decisions give little guidance to future litigants. Using a law and economics framework, this case study is clarifying in several aspects compared to a traditional legal analysis. The analysis focuses on two aspects of an insider trading case. First, the price-sensitive character of the information is examined. Second, the standard of proof was examined.

**Keywords:** insider trading, regulation, criminal prosecution, standard of proof, law & economics

**JEL classification:** K14, K22, K42

## 1. Introduction

This article deals with insider trading regulations and focuses on the enforcement problems of such rules. This is an important area of research since it is generally assumed that the enforcement of insider trading prohibition and market manipulation is of crucial importance to ensure the integrity of financial markets and to enhance investor confidence in those markets.

The topic is also highly relevant since the legal framework of a country (market integrity, investor protection) is very important for the development of its financial markets and its economic growth. Strong empirical evidence for the relationship between a country's legal framework and its financial development is offered by the law and finance literature, which was initiated by the seminal papers of La Porta et al.<sup>1</sup> For instance, it is shown that a good legal environment expands the ability of companies to raise external finance through either debt or equity.<sup>2</sup> Although the existence of legal rules is an important element for the development of financial markets, it is furthermore shown that the enforcement of these rules is of equal importance.<sup>3</sup>

This article illustrates several difficulties in prohibiting and prosecuting insider trading by using a clinical study of the Belgian industrial company *Bekaert, NV*.<sup>4</sup> Up to now, no economic analysis of this case is ever conducted in literature. Clearly, a clinical study cannot resolve every aspect of regulating and prosecuting insider trading, but nevertheless, several interesting conclusions can be drawn which were previously undocumented in a pure legal analysis.

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<sup>1</sup> R La Porta, F Lopez-de-Silanes, A Shleifer and RW Vishny, "Legal determinants of external finance" (1997) 52 *Journal of Finance*, 1131-1150 and R La Porta, F Lopez-de-Silanes, A Shleifer and RW Vishny, "Law and Finance" (1998) 106 *Journal of Political Economy*, 1113-1155.

<sup>2</sup> La Porta, Lopez-de-Silanes, Shleifer and Vishny (1997), *supra* n 2, 1131-1150.

<sup>3</sup> La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998), *supra* n 2, 1113-1155.

<sup>4</sup> First Instance Criminal Court of Ghent [27 September 1995] (1995) 9 *Bank- en Financierewezen*, 535-538. Besides the Bekaert case only one other criminal insider trading case was pronounced in Belgium, i.e. the Bemat case. In this case an accountant of the company Bemat acting on inside information was convicted to 50,000 Belgian francs. See: First Instance Criminal Court of Charleroi [27 September 1995] (1995) 9 *Bank- en Financierewezen*, 539. Being a very small case with little or no legal or economic aspects, we choose the Bekaert-case as a case-study. Recently a third insider trading case was pronounced. See First Instance Criminal Court of Ghent [18 December 2002] (2003) 1 *Bank- en Financieel Recht*, 53-57. For a legal analysis of this case, see PJ Engelen, "Handel met voorkennis: Belgische regelgeving onverenigbaar met Europese Richtlijn" [*Eng.: Insider Trading: Belgian regulation violates European Directive*] (2003) 1 *Bank- en Financieel Recht*, 58-61.

On February 22<sup>nd</sup>, 1994 the newscast of the national Belgian television reported the criminal prosecutions in the first insider trading case ever in Belgium. The suspicious transaction in 1992 included shares of the Belgian industrial company *Bekaert, NV*. Being the first insider trading case in Belgium, the financial press in particular paid a lot of attention to it. Insider trading has been prohibited in Belgium since 1989.<sup>5</sup>

The article is organized as follows. Section two contains a brief overview of the Bekaert company, while section three summarizes the account of the facts. Section four contains a brief legal analysis of the Bekaert case. The next section analyzes this case from an economic point of view. We will demonstrate that the Court of Appeal by acquitting both accused correctly decided on this insider trading case, although for the wrong reasons. We will show that despite the fundamental difference between the First Instance Criminal Court and the Court of Appeal, both courts have much in common, i.e. they appear to have a complete lack of the knowledge of the functioning of financial markets. Therefore, section five will provide an economic analysis of this case. We will demonstrate that it is impossible to formulate legal rules on insider trading without some understanding of the economic consequences of different kinds of actions. Without a clear understanding of financial economics, there's a good chance that the legal analysis by the courts is reduced to a recitation of clichés lacking any analytical content such as “the information was privileged because the stock price increased after the public announcement of the interim dividend.”<sup>6</sup> Because both criminal courts seem to lack a good understanding of the nature of financial markets, it is doubtful that their decisions give much guidance to future litigants. Therefore, section five will offer such a framework. It starts with examining the privileged character of the information. Next, the problem of the burden of proof is analyzed. Section six contains the conclusions.

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<sup>5</sup> Incorporation of Article 509-4 into the Belgian Criminal Code. See Article 27 of the Statute of 9 March 1989 modifying the Commercial Code and the Royal Decree No.185 of 9 July 1935 on Bank Control and on the Issuance of Transferable Securities, *Belgian Gazette*, 9 June 1989, erratum, *Belgian Gazette*, 27 June 1989. In consequence of European Directive 89/592/EEC of 13 November 1989 for the Coordination of the Regulations of Insider Trading, OJ, L334/30, the regulation of insider trading was rewritten in Part V (Art.181-193) of the Statute of 4 December 1990 on Financial Transactions and Financial Markets, *Belgian Gazette*, 22 December 1990, erratum, *Belgian Gazette*, 1 February 1991, modified by the Statute of 6 April 1995 on the Secondary Markets, the Status and Supervision of Investment Firms, Intermediaries and Advisers, *Belgian Gazette*, 3 June 1995 [*in short: SFTFM*]. This Statute, which came into force on 1 January 1991, replaced the former insider trading regulation of Article 509-4 of the Belgian Criminal Code.

<sup>6</sup> First Instance Criminal Court of Ghent, *supra* n 7, 537.

## 2. The Bekaert company

Formed in 1880 by Leo Leander Bekaert, the Belgian industrial company *Bekaert, NV* quickly became the largest worldwide independent manufacturer of wire, wire products and steel cord.<sup>7</sup> It started its international expansion in the 1920s, first in Western Europe, and after World War II, in Latin America (1950s) and North America (1970s). By 1992 the company exploited 48 manufacturing facilities in fifteen countries, such as the United States, Brazil, Australia, the UK, Ecuador and Japan.<sup>8</sup> Besides the manufacturing facilities, Bekaert had 28 worldwide sales offices, including China, Canada and the US. Since the 1950s, steel cord for rubber reinforcement, used chiefly in radial tyres, has been a major determinant of the company growth. In 1992 the Bekaert-group, comprising the consolidated companies and participating interests, achieved a turnover of EUR 1.31 billion and a consolidated profit of EUR 67.23 million.<sup>9</sup> By the end of 1992 the Bekaert-group had a workforce of 11,087 employees. The key figures of the company for that period are summarized in Table 1.

*Table 1. Key financial figures for Bekaert, NV (consolidated), in millions euro<sup>a</sup>*

Year (31/12/XX)	1992	1991	1990
Total assets	1,501	1,477	1,488
Equity	632	585	589
Turnover	1,319	1,313	1,413
Operating result	57	10	31
Net result	67	(16)	(11)
Net dividend per ordinary share	6.20	2.48	2.48
Price of ordinary share on 31 Dec.	334.66	226.33	185.18

<sup>a</sup> Except the net dividend and the stock price

Source: Bekaert Group, *Annual report*, 1992, 1991, 1990

By the end of the 1980s and the early 1990s market conditions aggravated because of the recession in the US (especially due to the decreasing demand for automobiles and the increasing competition among tyre manufacturers) and Europe, the collapse of the demand of the former Eastern bloc, the decline of the demand in the Middle-East because of the Gulf War and difficulties in the Brazilian economy.<sup>10</sup> The combination of these factors brought about a net loss of EUR 11 and EUR 16 million in 1990 and 1991 respectively (compared to net positive result of EUR 100 and EUR 91 million for 1988 and 1989 respectively). To turn around these financial difficulties, the company announced major restructuring programs

<sup>7</sup> Bekaert Group, *Annual report* (Belgium, 1992), 3.

<sup>8</sup> Bekaert Group, *Annual report* (Belgium, 1991), 19.

<sup>9</sup> Original figures in Belgian Francs, recalculated to Euro.

<sup>10</sup> Bekaert Group, *Annual report* (Belgium, 1990), 2 and *supra* n 13, 8.

such as the ‘breakthrough’-program in its steel cord division and the restructuring of its wire division in Europe.<sup>11</sup> To finance these restructuring programs without an increase of its capital, Bekaert was forced to cut back its dividend from EUR 7.44 in 1989 to EUR 2.48 in 1990, promising to raise the dividend back to its normal level as soon as possible.<sup>12</sup>

Being of crucial importance for the success of Bekaert since the 1950s, the company invested heavily in the manufacturing of steel cord for rubber reinforcement in radial tyres. Therefore, it established a joint venture with *Bridgestone*, a local Japanese player at that moment, to manufacture steel cord for the tyre industry. After the acquisition of *Firestone*, Bridgestone became the third most important tyre manufacturer worldwide. Because the production of steel cord for tyres accounted for 80% of Bekaert’s production and because other tyre manufacturers objected to the collaboration between Bekaert and Bridgestone, the company already decided on its 1991 General Meeting of Shareholders to review its collaboration with Bridgestone.<sup>13</sup> In order to maintain its independency and its competitive position versus all tyre manufacturers, Bekaert and Bridgestone decided to list their joint-venture (*Bridgestone-Bekaert Steel Cord Co., Ltd.*) as an independent company on the second market of the Japanese stock exchange.<sup>14</sup> Bekaert would sell a stake of 12.75% to Japanese investors in 1992 and would sell its remaining shares afterwards on the stock exchange during 1993. The sale of the 12.75% stake in Bridgestone-Bekaert Steel Cord realized capital gains of EUR 26 million.<sup>15</sup> Because of this extraordinary profit, the company decided to distribute an interim dividend of EUR 2.48 in December 1992.<sup>16</sup> It was precisely around the announcement of this interim dividend that the alleged insider trading occurred. The account of the facts is outlined in the next section.

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<sup>11</sup> Bekaert Group, *supra* n 13, 9.

<sup>12</sup> Bekaert Group, *supra* n 14, 7 and testimony of Karel Vinck, CEO, during the Bekaert trial. See also “Karel Vinck getuige op proces Storme-Bekaert” [Eng.: *Karel Vinck witness at Storme-Bekaert trial*], *De Financieel Economische Tijd*, 23 February 1995.

<sup>13</sup> Bekaert Group, *supra* n 13, 9.

<sup>14</sup> “Bekaert stapt uit Japanse joint venture met Bridgestone” [Eng.: *Bekaert leaves its Japanese joint venture with Bridgestone*], *De Financieel Economische Tijd*, 21 March 1992 and Bekaert, *supra* n 12, 19-20.

<sup>15</sup> The realized capital gains accounted for over 56% of the extraordinary profits (BEF 1,847 million) in 1992. Excluding these capital gains the net result would decrease by 27.3%. See consolidated profit and loss statement of 1992 in Bekaert, *supra* n 12, 36-37.

<sup>16</sup> “Bekaert geeft kerstgeschenk: interimdividend van 100 fr” [Eng.: *Bekaert distributes Christmas present: interim dividend of 100 BEF*], *De Financieel Economische Tijd*, 22 December 1992.

### 3. The account of the facts

There were two suspects in this criminal insider trading case. The first accused, being a great-granddaughter of the company founder, was a member of the board of directors of Bekaert since 1991. Her spouse was the second accused. Because the company realized a capital gain of EUR 26 million on the sale of their Bridgestone-Bekaert Steel Cord stocks, the board of directors discussed the possibility of distributing an interim dividend for the first time during the board meeting of November 20<sup>th</sup>, 1992.<sup>17</sup> The formal decision to distribute an interim dividend of EUR 2.48 was taken on December 18<sup>th</sup>, 1992 by the board of directors, of which the first accused was a member. The news to distribute this interim dividend was released on December 21<sup>st</sup> after the closing of the Brussels Stock Exchange and appeared in the financial press on the following day. On December 21<sup>st</sup> the stock price rose from its opening price of EUR 312.97 to its closing price of EUR 322.88, being 3.17% higher than its opening price or 3.37% higher than its previous close. On the next day, the Bekaert stock opened at EUR 330.94 and closed at EUR 337.14, while the total volume accounted 5,410 and 5,640 stocks on December 21<sup>st</sup> and December 22<sup>nd</sup> respectively.

The Belgian Banking and Finance Commission (BFC), being the supervisory authority on the Brussels Stock Exchange in 1992, continuously monitored price and volume patterns and apparently started an investigation because of the price and volume behavior of the Bekaert stock.<sup>18</sup> Investigating a period of three weeks before the announcement of the distribution of the interim dividend, the BFC detected a stock order of 400 Bekaert shares on December 21<sup>st</sup> for the amount of EUR 128,859 on the account of *Batibo, NV*.<sup>19</sup> In this company, the second accused is the delegated director and holds the majority of the shares. Because the purchase by the second accused occurred one day before the official announcement of the distribution of the interim dividend and because he was married to the first accused, being a member of the board of directors that decided on the interim dividend, insider trading was suspected and both faced criminal prosecution. The alleged information processing channel is summarized in Figure 1.

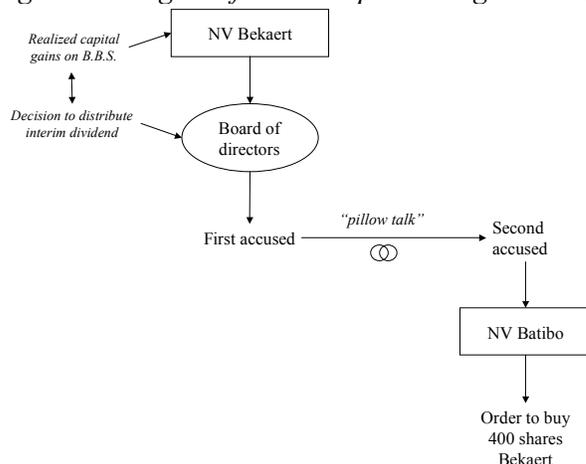
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<sup>17</sup> Testimony of Karel Vinck, CEO, during the Bekaert trial. See also *supra* n 16 and Court of Appeal of Ghent [30 April 1997] (1997) *Bank- en Financierwezen*, 414.

<sup>18</sup> Court of Appeal of Ghent, *supra* n 21, 413.

<sup>19</sup> First Instance Criminal Court of Ghent, *supra* n 7, 536.

Figure 1. Alleged information processing channel in the Bekaert, NV case



#### 4. Brief legal analysis of the Bekaert case

The first accused faced criminal charges based on articles 182 and 183 SFTFM.<sup>20</sup> Article 182 SFTFM prohibits persons who, by virtue of their membership of the administrative, management or supervisory bodies of the issuer, possess information that they know or could reasonably be expected to know that it is privileged (the so-called primary insiders) to acquire or transfer, for their own account or for the account of a third party, either directly or indirectly, securities or other financial instruments to which this information relates. Moreover, article 183 SFTFM also prohibits the disclosure of the privileged information to third parties (unless such disclosure is made in the normal course of the exercise of their employment, profession or duties) or the recommendations to third parties to acquire or dispose of (or to make a third party to acquire or dispose of) securities or other financial instruments on the basis of that privileged information. The first accused is therefore being charged with the crime of tipping the privileged information to her spouse, the second accused.

The second accused who made the actual purchase of the Bekaert shares based on the alleged privileged information, could not be qualified as a primary insider according to article 182 SFTFM. Neither by virtue of a membership of the administrative, management or supervisory bodies of Bekaert, neither by virtue of a holding in the capital of Bekaert, and neither by

<sup>20</sup> Statute of 4 December 1990 on Financial Transactions and Financial Markets, *Belgian Gazette*, 22 December 1990, erratum, *Belgian Gazette*, 1 February 1991, modified by the Statute of 6 April 1995 on the Secondary Markets, the Status and Supervision of Investment Firms, Intermediaries and Advisers, *Belgian Gazette*, 3 June 1995 [*in short*: SFTFM].

virtue of the exercise of any employment, profession or duties, the second accused possessed any privileged information.<sup>21</sup> Therefore, the second accused had to be prosecuted based on article 184 SFTFM that states that the prohibition laid down in articles 182 and 183 SFTFM is applicable to any person, other than those referred to in these articles, who with full knowledge possesses information that he knows or is reasonably expected to know that it is privileged and comes directly or indirectly from a person referred to in article 182 or 183 SFTFM. For the second accused to be liable to criminal prosecution under article 184 SFTFM as a secondary insider, three conditions must be satisfied: (1) to possess the information with full knowledge, (2) to know or to reasonably expected to know that the information is privileged and (3) to know or to reasonably expected to know that the information comes directly or indirectly from a primary insider.

The two accused were convicted by the First Instance Criminal Court of Ghent because the first accused by virtue of her membership of the board of directors of Bekaert clearly knew or could reasonably be expected to know that the announcement of the distribution of an interim dividend was privileged information and that it was abundantly clear that the first accused had communicated this privileged information to the second accused, who subsequently bought Bekaert shares with full knowledge of information that he knew or was reasonably expected to know to be privileged. Therefore the criminal court imposed the following sanctions: an imprisonment of three months with delay, professional restrictions on board functions, a fine of EUR 12,395 and a triple disgorgement of EUR 44,620.

However, the Court of Appeal acquitted both accused.<sup>22</sup> According to the Court of Appeal it is not sufficient to identify the persons involved with insider trading, but the link between the trader and the information has to be demonstrated as well. In this case, the Court of Appeal applied a very high burden of proof. Although both the First Instance Criminal Court as well as the Court of Appeal demonstrated that a member of the Board of Directors of Bekaert possessed material non-public information and demonstrated that her husband bought stocks of this company, both court reached a different conclusion. While the First Instance Criminal Court judged that the link between the trader and the information was proven, the Court of Appeal reversed this decision. According to the Court of Appeal, “this was a serious presumption, but

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<sup>21</sup> PJ Engelen, *Informatieverstrekking door Beursgenoteerde Vennootschappen* [Eng.: *Information Disclosure by Listed Companies*], (Antwerpen, Intersentia Law Publishers, 1999), nr.318.

<sup>22</sup> Court of Appeal of Ghent, *supra* n 21, 413.

this presumption in itself is insufficient to satisfy the burden of proof of insider trading, unless this was supported by other facts or presumptions.”<sup>23</sup>

## **5. An economic analysis of the Bekaert case**

While the previous section contains a brief legal analysis of the Bekaert case, this section analyzes this case from an economic point of view, for one cannot avoid the impression that both courts have a complete lack of knowledge of the functioning of financial markets. Section 5.1 starts with examining the privileged character of the information. Next, section 5.2 analyzes the problem of the burden of proof.

### **5.1. Privileged character of the information**

According to criminal law, if one of the constituent parts of the criminal offence is lacking, the accused can be acquitted of the charge of insider trading by the court without further investigation of any other elements of the criminal case.<sup>24</sup> Therefore, it is the first task of the court to determine whether the information is privileged or not. Not until this question has been answered affirmatively by the court, the acts of the accused ought to be investigated. However, nor the First Instance Criminal Court, nor the Court of Appeal have investigated explicitly the privileged character of the information. This is truly a lost opportunity because financial economics offers a clear theoretical framework as well as adequate empirical instruments to assess explicitly whether the information is privileged or not. By using an event study approach, one can determine how security prices react to new information. In this way event study methodology clearly fits the definition of the criminal offence. For, according to article 181 SFTFM, ‘privileged information’ is any information which has not been made public, which is of a sufficiently precise nature relating to one or several issuers of securities or other financial instruments and which, if it were made public, *would be likely to have a significant effect on the price listed* for this or these securities. By examining the causal connection between the information that the first accused possessed by virtue of her membership of the board of directors and the purchase by the second accused, both courts implicitly assumed the information on the distribution of an interim dividend to have a significant effect on the price listed. Because an explicit investigation of the privileged

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<sup>23</sup> Court of Appeal of Ghent, *supra* n 21, 414.

character of the information is a necessity, this section offers a theoretical as well as an empirical framework to determine whether there was any privileged information or not.

The question if any piece of information is price-sensitive cannot be answered on an a priori basis and can never be answered in the abstract. Because the current legal literature offers little guidance for determining whether the information is price-sensitive or not, the danger exists that some piece of information may appear *prima facie* to be important to investors when in fact it is not. Only a clinical analysis of the case can show whether the information is price-sensitive or not.

### ***(a) Theoretical considerations***

From an economic point of view, information can be considered to be privileged if it can be expected to have a significant effect on the market price of the security once the information is made public. If security prices are semi-strong informationally efficient with regard to some piece of information, stock prices will reflect all publicly available information and will react instantaneously to the disclosure of new non-public information.<sup>25</sup> Therefore, the relevant question is whether the announcement contained some value-relevant information to investors. Put differently, what piece of *new* information was disclosed by announcing the distribution of an interim dividend of EUR 2.48?

Section one showed that Bekaert decided to distribute an interim dividend of EUR 2.48 in December because of the realization of the extraordinary profit on the sale of its participation in Bridgestone-Bekaert Steel Cord (BBS). However, as section one showed, the company already decided on its 1991 General Meeting of Shareholders to review its collaboration with Bridgestone in order to maintain its independency and its competitive position versus all tyre manufacturers. As a consequence of this decision Bekaert announced the sale of its participation in Bridgestone-Bekaert Steel Cord on March 21<sup>st</sup>, 1992 (see BBS-news in Figure 2). Because these facts were publicly known well before the announcement of the distribution of the interim dividend on December 21<sup>st</sup>, this information could be expected to be already incorporated in the security price of Bekaert. Although one could argue that the

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<sup>24</sup> C Van den Wyngaert, *Strafrecht en strafprocesrecht in hoofdlijnen*, (Antwerpen, Maklu, 1999).

exact capital gain was not known before the announcement, financial markets had a very good idea of the value of the participation based on the financial statements of Bridgestone-Bekaert Steel Cord. Furthermore, Bekaert already sold a participation of 12% in Bridgestone-Bekaert Steel Cord to its Dutch daughter *Bekaert Holdin, BV* in 1990 realizing a capital gain of EUR 42 million at that time.<sup>26</sup> So all this information was already available in public documents and was therefore already reflected in security prices.

<insert Figure 2 here>

Moreover, a companies' dividend policy is irrelevant with respect to the value of a company.<sup>27</sup> Distributing a dividend therefore creates no value to investors. This can be illustrated by means of an example. Assume a company starts with a capital of EUR 1,000,000, represented by 1,000 shares. After one year, the company realizes after-tax earnings of EUR 200,000. The company has several options: distribute the profits as a cash dividend, retain the earnings inside the company, distribute the earnings by way of a stock dividend or repurchase some of its own shares. If the company decides to distribute all of its earnings as a cash dividend, the shareholders as a group receive EUR 200,000, while the value of the company is EUR 1,000,000 at the end of the year. If the company retains all of

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<sup>25</sup> E Fama, "Efficient capital markets: a review of theory and empirical work" (1970) *Journal of Finance*, 383-417, E Fama, "Efficient Capital Markets: II" (1991), *Journal of Finance*, 1575-1617 and PJ Engelen, *Remedies to Informational Asymmetries in Stock Markets*, (PhD Dissertation, University of Antwerp, 2002).

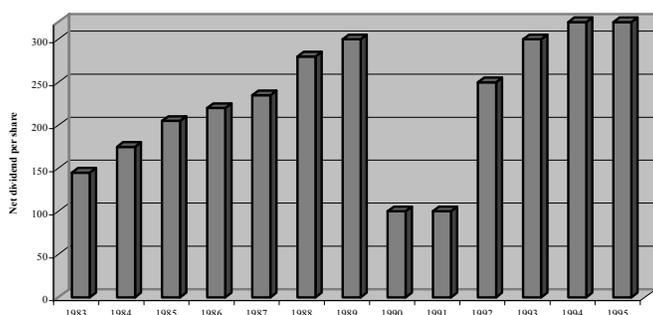
<sup>26</sup> Bekaert, *supra* n 14, 3 and *supra* n 13, 16.

<sup>27</sup> R Brealey and S Myers, *Principles of Corporate Finance*, (McGraw Hill, 2000). Assuming perfect and efficient capital markets, M Miller and F Modigliani, "Dividend policy, growth, and the valuation of shares" (1961) 34 *Journal of Business*, 411-433, show that the dividend policy does not affect the company's value. Dividend policy is therefore said to be irrelevant. So the dividend controversy comes down to the existence of market imperfections such as taxes or transaction costs. Proponents of the personal tax hypothesis argue that dividend policy does matter. They argue that shareholders will prefer companies not to pay dividends as long as the personal tax rate on income received in the form of dividends is greater than the personal tax rate on capital gains. It is more beneficial for shareholders to realize capital gains or to be paid out through share repurchases. This means that for a given company, stock prices will be higher than a situation in which they pay out dividends. Put differently, high-dividend yield stocks tend to sell at lower prices (Brealey and Myers, *supra* n 31). See also D Farrar and L Selwyn, "Taxes, corporate financial policy and return to investors" (1967) *National Tax Journal*, 444-454, M Brennan, "Taxes, market valuation and corporate financial policy" (1970) *National Tax Journal*, 417-427, R Litzenberger and K Ramaswamy, "The effect of personal taxes and dividends on capital asset prices: theory and empirical evidence" (1979) 7 *Journal of Financial Economics*, 163-195 and R Litzenberger and K Ramaswamy, "The effects of dividends on common stock prices: tax effects or information effects" (1982) 37 *Journal of Finance*, 429-443. Shareholders who need cash can always sell off a fraction of their holdings. If anything, investors in Belgium would prefer capital gains over dividends, given the tax rates in Belgium. In that case, distributing a dividend would be bad news. However, several studies such as F Black and M Scholes, "The effects of dividend yield and dividend policy on common stock prices and returns" (1974) 1 *Journal of Financial Economics*, 1-22, M Miller and B Scholes, "Dividends and taxes" (1978) 6 *Journal of Financial Economics*, 333-364 and M Miller, "Behavioral rationality in finance: the case of dividends" (1986) 59 *Journal of Business*, 451-468 demonstrate that, in equilibrium, the dividend payouts of companies match the preferences of investors, and no company would be able to affect its share price by altering its dividend policy. Therefore, even with taxes, dividend policy is irrelevant.

the earnings, the value of the company increases from EUR 1,000,000 at the beginning of the year to EUR 1,200,000 at the end of the year. In an efficient market the stock price will rise from EUR 1,000 to 1,200. As can be seen, shareholders will be indifferent between receiving a cash dividend of EUR 200 or a capital gain of EUR 200.<sup>28</sup>

As an alternative, the company can distribute a stock dividend to its shareholders, e.g. issue 200 new shares to its existing shareholders. In this case, the value of the company is still EUR 1,200,000, represented by 1,200 shares with a stock price of EUR 1,000. Finally, the company can decide to repurchase its own shares, e.g. at an offer price of EUR 1,200. Using the earnings of EUR 200,000 it would be possible to buy back 166.67 shares. In this way, a shareholder will realize a capital gain of EUR 200, while the company value is equal to 833.33 times EUR 1,200 or EUR 1,000,000. Again, this is the same value as the cash dividend case. Therefore, the choice between retaining the realized capital gains inside the company and the distribution through an interim dividend is basically irrelevant to the shareholders of Bekaert. The announcement of the decision of the distribution of the interim dividend has no value-relevance on itself.

Figure 3. Net dividends per share of Bekaert, NV



Source: Bekaert Group, *Annual reports*

As the choice of distributing the extraordinary profits is irrelevant, the only news the announcement of the interim dividend could contain is that it signals better future performances of the company.<sup>29</sup> As put forward in section one, Bekaert decided to cut back

<sup>28</sup> Ignoring tax effects and transaction costs, although see supra the remarks in note 27.

<sup>29</sup> A number of empirical studies report that increases in dividends lead to positive abnormal returns, while decreases lead to negative abnormal returns. See K Eades, P Hess and E Kim, "Market rationality and dividend announcements" (1985) 14 *Journal of Financial Economics*, 581-604, P Healy and K Palepu, "Earnings information conveyed by dividend initiations and omissions" (1988) 21 *Journal of Financial Economics*, 149-175, L Lang and R Litzenger, "Dividend announcements: cash flow signalling vs. free cash flow hypothesis"

its dividend from EUR 6.20 in 1989 to EUR 2.48 in 1990 because of financial difficulties and, at the same time, it promised to raise the dividend back to its normal level as soon as possible.<sup>30</sup> The announcement to distribute an interim dividend of EUR 2.48 could therefore signal that the performance of Bekaert was ameliorating. Again, this seems not the case because Bekaert already released the information on its better performance during the announcement of its half-year figures on September 14<sup>th</sup>, 1992 (see 1H-figures in Figure 2).<sup>31</sup> Besides, an extraordinary one-time dividend would signal little about the evolution of ordinary profits.

Finally, the interim dividend, being equal to EUR 2.48 for common stocks, was only a fraction of the realized capital gains on the sale of the participation. Given a total of 2,245,732 outstanding shares, the realized capital gain per share amounted EUR 11.60. Also the interim dividend of EUR 2.48 is only 0.77% of the closing price of EUR 322.88 on December 21<sup>th</sup>. It is therefore unlikely that the mere announcement to distribute part of the capital gains through an interim dividend would cause a significant price increase.

Based on the above theoretical considerations, it is therefore very unlikely that the distribution of an interim dividend caused a raw return of 4.32% (or an abnormal return of 2.61%) on December 22<sup>nd</sup>.<sup>32</sup> The only conclusion one has to reach based on financial economic principles is that the announcement on December, 21<sup>st</sup> did not contain any value-relevant information and therefore it was not privileged.

### ***(b) Empirical analysis***

While the previous section analyzed the value-relevance of the announcement of the distribution of the interim dividend on theoretical grounds, this section determines whether the price impact of the announcement is significant or not using an empirical framework. To test if the stock price return of Bekaert on the day that the announcement was made, differs

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(1989) 24 *Journal of Financial Economics*, 181-191, C Kao and C Wu, "Tests of dividend signalling using the Marsh-Merton model: a generalized friction approach" (1994) *Journal of Business*, 45-68 and R Michaely, R Thaler and K Womack, "Price reactions to dividend initiations and omissions: overreaction or drift?" (1995) 50 *Journal of Finance*, 573-608.

<sup>30</sup> Bekaert Group, *supra* n 14, 7.

<sup>31</sup> "Hoge verwachtingen worden ingelost. Bekaert vervijfvoudigt halfjaarwinst" [*Eng.: High expectations are met. Bekaert's first-half profits increase fivefold*], *De Financieel Economische Tijd*, September, 15 1992.

<sup>32</sup> See *infra* table 2 for the exact calculation of this abnormal return.

from what the return would have been without the announcement, event study methodology is used. An event study measures whether the difference between the actual return on the event day ( $R_{i,t}$ ) and the expected return  $E[R_{i,t}]$  occurred by chance or not.<sup>33</sup> This difference is called the abnormal return. If it is different from zero it means that the event caused a return which is different from the normal return investors can expect to realize on that day if no specific event materializes. The existence of a significant non-zero abnormal return indicates therefore the release of value-relevant information.<sup>34</sup> If this is the case, the information can be labelled as ‘privileged’.

Over a period of twenty trading days before and after the event, resulting in a 41-day event window, abnormal returns are being calculated to examine the return behavior around the announcement of the interim dividend in order to determine if there was any price impact and if there was any anticipatory price behavior resulting from insider trading. Share price data for Bekaert and data on the *Brussels All Share Price Index* were collected from *Datastream*. Three models are used to measure the benchmark expected return for the Bekaert share: the market model, the market-adjusted model, and the Dimson model.<sup>35</sup> The market model abnormal returns are calculated as:

$$AR_{i,t} = R_{i,t} - (\hat{a}_i + \hat{b}_i \cdot R_{m,t}) \quad [1]$$

where ‘ $\hat{\phantom{x}}$ ’ denotes the OLS estimates from the market model:

$$R_{i,t} = a_i + b_i \cdot R_{m,t} + e_{i,t} \quad [2]$$

In order to calculate market model abnormal returns, information from outside the event window is used. The parameters of the market model are estimated over a 100-day period from -21 to -120 trading days before the event day. To test for the robustness of the result for the choice of the estimation window calculations were made using a 150 days and a 200 days estimation window as well.

Besides the market model abnormal returns, also the market-adjusted abnormal returns are calculated:

$$AR_{i,t} = R_{i,t} - R_{m,t} \quad [3]$$

<sup>33</sup> AC MacKinlay, “Event studies in economics and finance” (1997) 35 *Journal of Economic Literature*, 13-39.

<sup>34</sup> N Strong, “Modelling abnormal returns: a review article” (1992) 19 *Journal of Business Finance & Accounting*, 533-553.

<sup>35</sup> The following variables are used:  $AR_{i,t}$  = abnormal return of stock  $i$  on day  $t$  of the estimation period;  $R_{i,t}$  = the return of stock  $i$  in period  $t$ ;  $R_{m,t}$  = the market index return in period  $t$ ;  $a_i$ ,  $b_i$  = intercept and slope coefficient of the market model;  $e_{i,t}$  = random disturbance term of the market model for stock  $i$  in period  $t$ ;  $b_{k,i}$  = parameters of the Dimson model. Finally, ‘OLS’ denotes ordinary least squares.

Although one can expect that the Bekaert shares are relatively tickly traded because they are listed on the most liquid segment of the Brussels Stock Exchange, the abnormal returns using the Dimson methodology to correct for thin trading are reported for the sake of completeness.<sup>36</sup> The Dimson model abnormal returns are calculated as:

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i^D - \hat{\beta}_i^D \cdot R_{m,t} \quad [4]$$

with

$$\hat{\beta}_i^D = \sum_{k=-2}^{k=+2} \hat{b}_{k,i}, \text{ and} \quad [5]$$

$$\hat{\alpha}_i^D = \frac{1}{96} \sum_{t=-118}^{t=-23} R_{i,t} - \hat{\beta}_i^D \frac{1}{96} \sum_{t=-118}^{t=-23} R_{m,t}$$

The estimation of the Dimson-beta consists of the aggregation of five estimated beta coefficients using two lead and two lag variables from<sup>37</sup>:

$$R_{i,t} = a_i + b_{-2,i} \cdot R_{m,t-2} + b_{-1,i} \cdot R_{m,t-1} + b_{0,i} \cdot R_{m,t} + b_{+1,i} \cdot R_{m,t+1} + b_{+2,i} \cdot R_{m,t+2} + w_{i,t} \quad [6]$$

Next, one has to determine whether the calculated abnormal returns are due to the random variation of the security price of Bekaert or to the announcement of the interim dividend. Using a statistical test, one can determine the probability that the calculated abnormal return occurred by chance or not. Assuming stock returns to be normally distributed, one can calculate the Z-score in order to determine the significance of the abnormal return.<sup>38</sup>

Table 2. Abnormal returns for the Bekaert share on December, 21<sup>st</sup> and 22<sup>nd</sup>, 1992

	MM-AR1	MM-AR2	MM-AR3	Market adj	Dimson	Dimson
Estimation window	100 days (-21,-120)	150 days (-21,-170)	200 days (-21,-220)	(-21,-120)	2 leads & lags (-22,-119)	4 leads & lags (-23,-118)
Beta	1,61	1,35	1,34	1	2,16	2,38
Stdev	0.013	0.013	0.012	0.014	0.013	0.014
Day (-1)	2,13%	2,31%	2,25%	2,63%	1,73%	1,61%
Day (0)	2,61%	2,87%	2,81%	3,29%	2,04%	1,85%
Z-value (day -1)	1,655	1,847	1,911	1,946	1,284	1,159
Z-value (day 0)	2,023*	2,289*	2,382*	2,434*	1,510	1,332

Legend:

MM-AR = market model abnormal return

Stdev = standard deviation of abnormal returns over the estimation window

Z-value: test statistic for normal probability distribution

Day (0) denotes December, 22 and day (-1) denotes December, 21

\*\*\* denotes significant at the 0.1% level

\*\* denotes significant at the 1% level

\* denotes significant at the 5% level

<sup>36</sup> E Dimson, "Risk measurement when shares are subject to infrequent trading" (1979) 7 *Journal of Financial Economics*, 197-226.

<sup>37</sup> Alternatively, the Dimson beta is calculated using one lead and one lag variable only.

<sup>38</sup> S Brown and J Warner, "Using daily stock returns. The case of event studies" (1985) 14 *Journal of Financial Economics*, 3-31 point out that the non-normality of daily returns has no obvious impact on event study methodology, implying that the normal distribution is a good approximation for event studies estimations.

Table 2 reports the abnormal returns for the Bekaert share on the 21<sup>st</sup> and 22<sup>nd</sup> of December 1992. Using a significance level of 0.1% or 1%, Table 2 shows that no abnormal return is significantly different from zero on the announcement day of the interim dividend, nor on the preceding day on which the alleged insider trading took place.<sup>39</sup> Given the high standard of proof demanded by criminal law in criminal cases, it is a sound advise to only use the 1% significance level in criminal cases (or even the more stringent 0.1% significance level). Using a 1% level of significance, there is a probability of 99% that the abnormal return occurred by chance<sup>40</sup>. As such the empirical results confirm the theoretical analysis. The announcement of the interim dividend was no privileged information within the meaning of article 181 SFTFM.

To finish this section on the privileged character, one can conclude that an economic analysis, both on theoretical grounds as well as on empirical grounds, shows that the announcement of the distribution of the interim dividend contained no privileged information. By not explicitly examining the privileged character of the information using financial economics, the likelihood increases that both courts can err in their decision. If this analysis was made explicitly, both courts could have stopped their investigation right there and acquitted the accused because a major element of the constituent parts of the criminal offence was lacking.

## **5.2. Burden of proof**

As seen in section three, the First Instance Criminal Court and the Court of Appeal reached complete opposite conclusions (i.e. conviction versus acquittal, respectively) although both examined the same insider trading case. At first sight, one has to conclude that one of the courts has made an error. If both accused were innocent in reality, then the First Instance Criminal Court has made an error. On the other hand, if both accused were guilty in reality, an error has been made by the Court of Appeal (see Table 3).

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<sup>39</sup> Only using a significance level of 5% an abnormal return on the announcement day is detected. However, no abnormal price return is detected on the preceding day.

<sup>40</sup> See also section 5.2 on the choice of the level of significance. Section 5.2 shows that a trade-off has to be made between type I and type II errors. We choose to minimize the type I error, i.e. the conviction of an innocent person. By choosing a 1% level of significance we reduce the number of miscarriages of justice. By choosing a 5% level of significance more innocent people are convicted wrongfully.

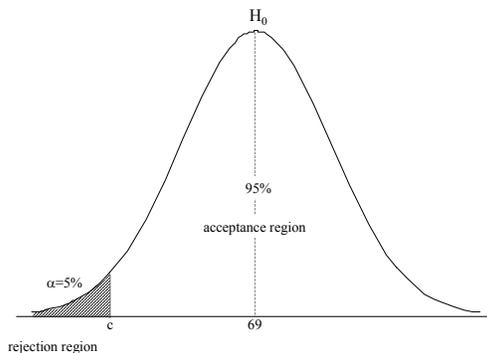
Table 3. Possible errors in criminal trials

Decision of the court	Reality	
	Innocent	Guilty
Innocent	ok	error
Guilty	error	ok

However, this section will show that such a conclusion does not have to be reached necessarily and that both decisions can be reconcilable depending on the standard of proof a criminal court is willing to apply. This can be seen if we reformulate this problem in statistical terms, i.e. hypothesis testing. Since the true state of the nature is rarely known, hypothesis testing is used to determine whether the value of a certain parameter of a sample out of a population is true or merely obtained by chance. Suppose a carpenter purchases a lot of timbers of 69 inches.<sup>41</sup> After the delivery, the lot is tested to determine if the length of the timbers is correct. Therefore, out of the lot, 25 timbers are selected at random. The average length ( $\mu$ ) of this sample is 67 inches. Is the difference of two inches due to chance or is the difference significant? To determine this, a so-called null hypothesis, generally denoted as  $H_0$ , has to be formulated and tested against an alternative hypothesis, denoted as  $H_1$ .<sup>42</sup> In our example we can formulate the hypotheses as:

$$H_0 : \mu = 69 \text{ inch}$$

$$H_1 : \mu < 69 \text{ inch}$$

Figure 5. Hypothesis testing with a 95% confidence interval for  $\mu$ 

Next, a critical value  $c$  has to be established in order to determine whether the difference of two inches is significant or not (see Figure 5). If the average length of the sample is smaller than  $c$ , the carpenter will refuse the lot because of a wrong length. In the opposite case, he

<sup>41</sup> Example based on D Gujarati, *Basic Econometrics* (McGraw-Hill, 1995), appendix A.8.

<sup>42</sup> J Freund and R Walpole, *Mathematical Statistics* (Prentice-Hall, 1987) and A Kvanli, C Guynes and R Pavur, *Introduction to Business Statistics. A Computer Integrated Approach* (West Publishing Company, 1992).

will accept the lot. In this case, the difference of two inches was found by chance. The area below  $c$  is called the rejection region, while the area outside this region is called the acceptance region.<sup>43</sup> Using a confidence region of 95%, the critical value of  $c$  is equal to 64.9.<sup>44</sup>

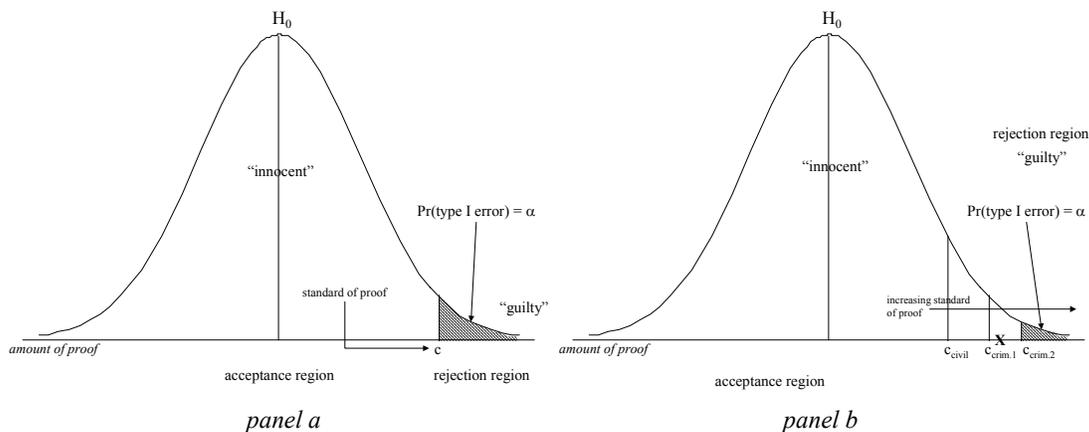
Similar to the above example, one can formulate a criminal trial in terms of hypotheses. Because the accused is assumed innocent in a criminal trial, the null and alternative hypothesis can be formulated as:

$H_0$  : *innocent*

$H_1$  : *not innocent or guilty*

The criminal trial in terms of hypothesis testing is summarized in panel a of Figure 6. As can be seen in panel b of Figure 6 different choices of  $c$ , which can be interpreted as the standard of proof, lead to different conclusions. Typically the standard of proof in a criminal trial ( $c_{\text{crim.}}$ ) is higher than in a civil trial ( $c_{\text{civil}}$ ). However, also criminal courts can reach different conclusions. Suppose the amount of proof is equal to the amount  $X$ : it is clear from Figure 7 that the accused will be convicted by criminal court 1 and acquitted by criminal court 2 ( $c_{\text{crim.1}} < X < c_{\text{crim.2}}$ ).

Figure 6. Hypothesis testing, standard of proof and acceptance region in case of different trials



<sup>43</sup> R Larsen and M Marx, *Statistics* (Prentice-Hall, 1990).

<sup>44</sup> Assuming a normal distribution and a standard deviation of 2.5 inches,  $c$  can be calculated out of:

$$Z_{.95} = -1.64 = \frac{c - 69}{2.5}, \text{ in which we obtain the value of } Z \text{ out of the normal distribution table.}$$

Before answering the question which court reached to the correct conclusion, the level of  $\alpha$  has to be determined. With regard to hypothesis testing, two errors can be made: a type I error and a type II error (see Table 4). A type I error refers to the situation in which the null hypothesis (here: ‘the accused is innocent’) is rejected when it is true in reality. The probability of type I error amounts the level of significance  $\alpha$ .<sup>45</sup> In criminal trial terms, this means that an observation (the accused) is not taken from a certain underlying group (innocent people) when it is really from that group. Therefore this implies the conviction of an innocent person. A type II error implies that the null hypothesis is not rejected when it is false in reality (probability of type II error is  $\beta$ ).<sup>46</sup> Because in this case an observation (the accused) is taken from the underlying group of innocent people while in reality it is from the group of guilty people, a type II error implies the acquittal of a guilty person.

*Table 4. Possible errors in hypothesis testing*

Decision	State of the nature	
	Null hypothesis is true	Alternative hypothesis is true
Accept null hypothesis	ok Pr(ok) = $1-\alpha$	type II error Pr(type II error) = $\beta$
Reject null hypothesis	type I error Pr(type I error) = $\alpha$	ok Pr(ok) = $1-\beta$

Ideally, one would like to minimize both type I and type II errors. However, this is not possible. Minimizing the probability of type I error (conviction of an innocent person) by making the significance level  $\alpha$  small(er), increases at the same time the probability of committing a type II error (acquitting a guilty person).<sup>47</sup> This is illustrated in Figure 7. By setting the standard of proof ( $c$ ), the value of  $\alpha$  and  $\beta$  is fixed. In turn, by choosing a level of significance  $\alpha$  (typically 0.001 or 0.01), the values of  $c$  and  $\beta$  are fixed. Therefore, the court has to make a trade-off between both errors. This choice is not a statistical one but a practical one. In fact, since there is no correct significance level, calibrating this trade-off is ultimately a value judgement based on the costs of incorrectly rejecting the null hypothesis.<sup>48</sup>

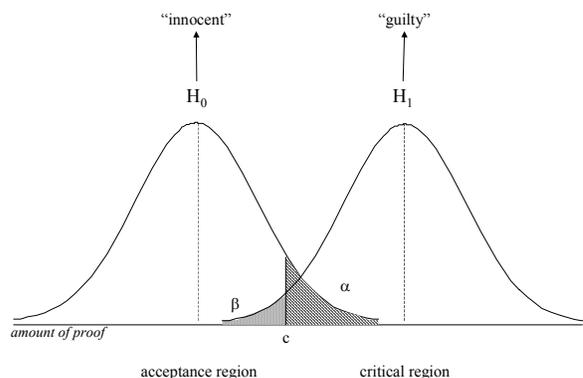
<sup>45</sup> T Wonnacott and R Wonnacott, *Introductory statistics for business and economics* (John Wiley, 1984).

<sup>46</sup> The probability of not committing a type II error ( $1-\beta$ ) is often called the power of the test.

<sup>47</sup> Kvanli, Guynes and Pavur, *supra* n 51.

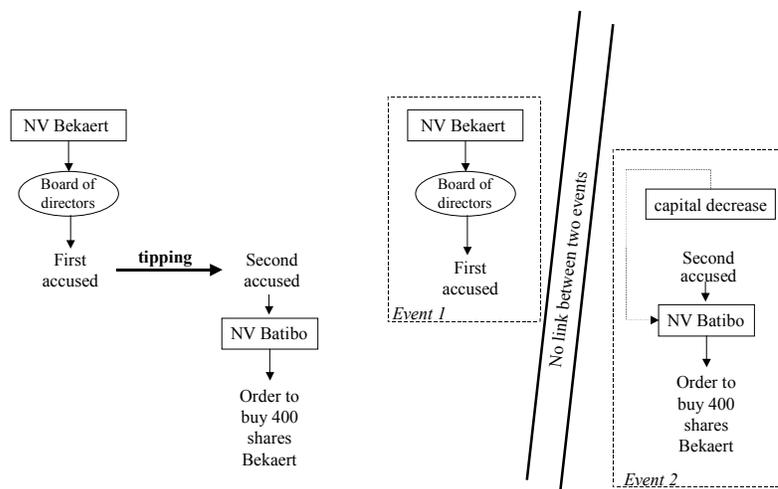
<sup>48</sup> Larsen and Marx, *supra* n 52.

Figure 7. Conflict between solving type I and type II errors



By acquitting both the accused the Court of Appeal implicitly uses a higher level of significance than the First Instance Criminal Court. Figure 8 compares both standards of proof. Panel A shows that the First Instance Criminal Court judged that the link between the trader and the information was proven, or as the Court put it: “It is *crystal clear* that the first accused has communicated the privileged information to the second accused.”<sup>49</sup> The court based its judgement upon the following evidence: the chronology of the facts, the marital status of the two accused, the fact that both accused administrated their assets, including 5,747 Bekaert shares<sup>50</sup>, jointly in a public limited company, NV Bekaert Storme Investments (BSI) and the rise of the stock price from EUR 322.88 on December, 21 to EUR 334.66 on December, 31.

Figure 9. Standard of proof applied by the two courts



Panel A. First Instance Criminal Court

Panel B. Court of Appeal

<sup>49</sup> First Instance Criminal Court of Ghent, *supra* n 7, 537.

<sup>50</sup> Notification on the basis of article 4 of the Statute of March 2 1989 of 5,747 shares (0.26% of outstanding capital) on June 16 1994. See Bekaert Group, *Annual report*, 1994, 75.

The Court of Appeal reversed this decision using a higher standard of proof ( compare  $c_{\text{crim.1}}$  and  $c_{\text{crim.2}}$  in Figure 6). Although the chronology of the facts and the marital status produce a serious presumption, this presumption in itself is, according to the Court, insufficient to satisfy the standard of proof of insider trading, unless this was supported by other facts or presumptions. According to the Court the participation of the first accused in the meeting of the board of directors of Bekaert deciding on the distribution of the interim dividend and the purchase of Bekaert shares by the second accused are two separate, coinciding events without any link between them (see panel B in Figure 8).

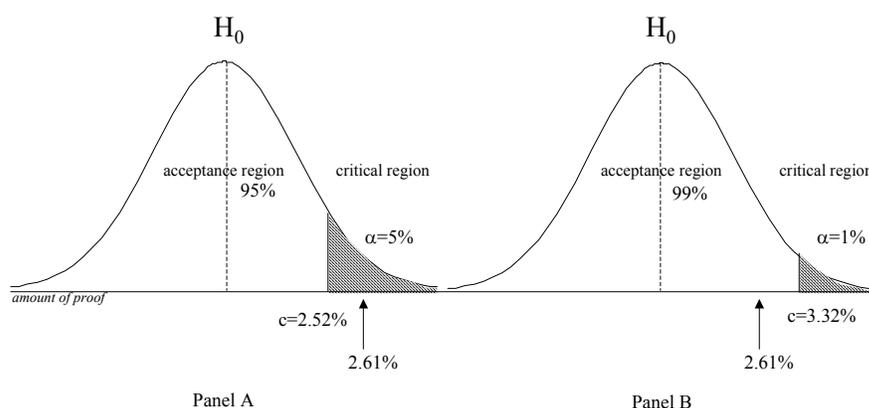
The Court of Appeal reconstructs the purchase by the second accused quite extensively to conclude that the purchase only coincides with the announcement of the interim dividend<sup>51</sup>. For, the second accused has purchased the shares with funds originating from a decrease of the capital of NV Batibo. The decision to decrease its capital from EUR 1.74 to 0.99 million was taken on the extraordinary meeting of shareholders on September 24, 1992. This is some considerable time before the meeting of the board of directors of Bekaert of November 20, 1992 during which the idea of distributing an interim dividend was discussed for the first time and before the meeting of December 18, 1992 during which the formal decision was taken. Therefore, it would be impossible to time the capital operation of Batibo in order to obtain funds to trade based on the alleged inside information. Furthermore, it is unlikely that the second accused has timed the actual payment of the funds in order to buy Bekaert shares based on the privileged information, because article 72bis Company Law provides a period of two months after the notice in the Belgian Gazette during which the funds cannot be paid back to the shareholders. Moreover, the Court stipulates that the second accused only invested one third of these funds in Bekaert shares, while he invested the rest in riskless bonds. If he were planning to trade on inside information, he would have bought more stocks and certainly not the day before the announcement of the interim dividend, accordingly to the Court.

Moreover, the Court concludes that nor the number of shares traded on December 21, nor the stock price movement was out of line with previous price- and volume-patterns on the Brussels stock exchange with regard to Bekaert shares during 1992.

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<sup>51</sup> Court of Appeal of Ghent, *supra* n 21, 414.

Figure 10. Hypothesis testing and standard of proof in determining abnormal returns



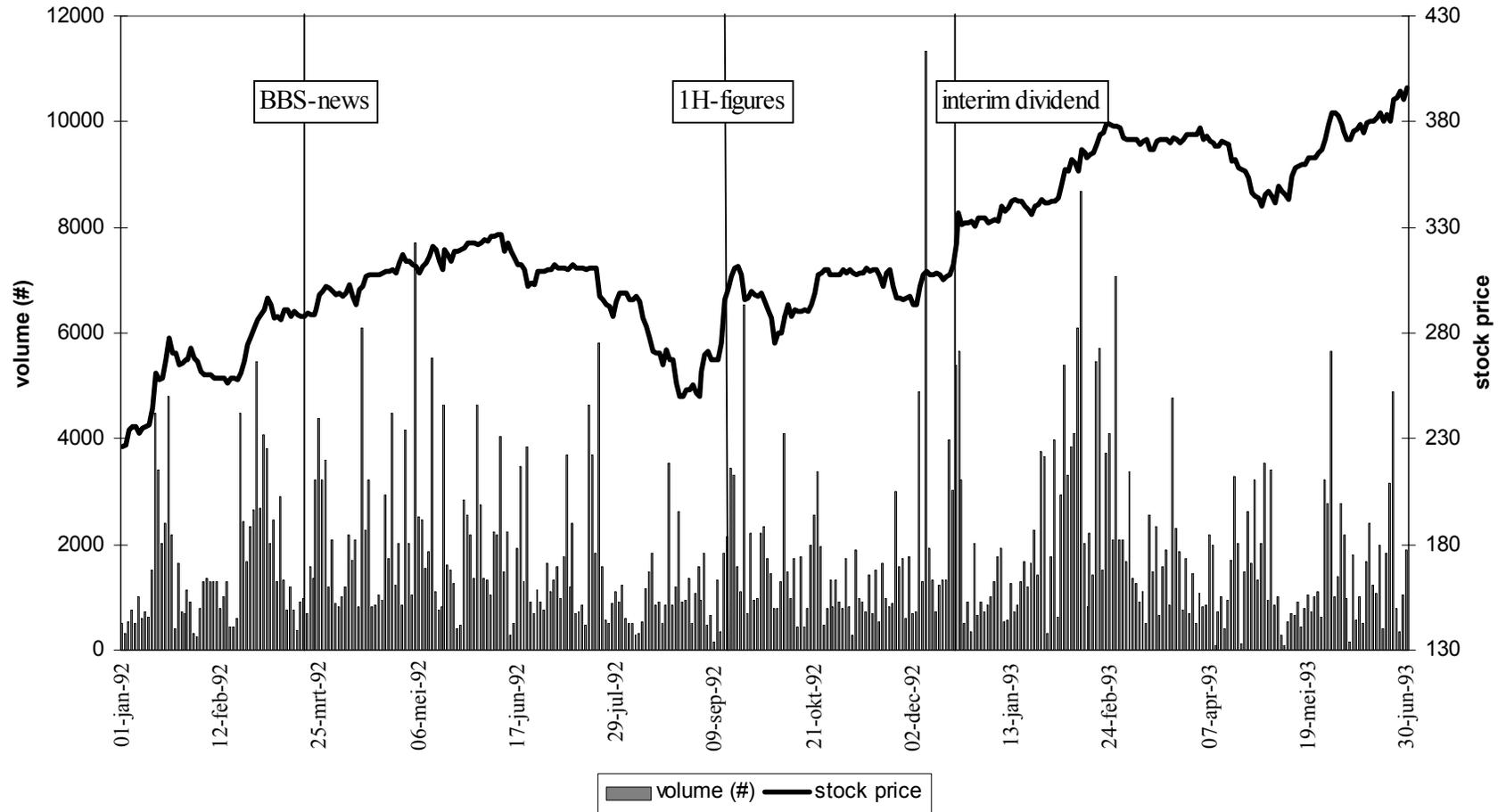
Again, as seen in the previous section, an economic analysis would reveal that the abnormal returns, using the market model, on the 21<sup>st</sup> and 22<sup>nd</sup> of December were 2.13% and 2.61% respectively. In order to determine whether this abnormal return occurs merely by chance or by the announcement of the interim dividend, statistical hypothesis testing is used. Using a high standard of proof, as is the case in a criminal trial and therefore using a 0.1% or 1% level of significance, on neither day an abnormal return was realized (panel B of Figure 10). Only using a less stringent standard of proof (e.g. in a civil case) and therefore using a 5% level of significance, an abnormal return on the 22<sup>nd</sup> of December is detected (panel A of Figure 10).

## 6. Conclusions

This article contained a clinical study of the biggest insider trading case in Belgium. Up to now, no economic analysis of this case was ever conducted. Using a law and economics framework, the case study of Bekaert is clarifying in several aspects compared to a traditional legal analysis. It showed that Belgian courts currently seem to lack knowledge of the functioning of financial markets to assess an insider trading case. Therefore their decisions give little guidance to future litigants. The above analysis focused on two aspects of an insider trading case. First, the price-sensitive character of the information must be examined. Current legal literature offers no guidance for determining whether the information is price-sensitive or not. The danger exists that some piece of information may appear to be important when in reality it is not. Only a clinical economic analysis of the case can show whether the information was price-sensitive or not. Using both theoretical models as well as empirical models it was demonstrated that the announcement of the distribution of the interim dividend in the Bekaert-case was no privileged information. By not examining the privileged character

explicitly, the danger exists that courts err in their decision, as our analysis showed. Second, the standard of proof was examined. It was shown that the standard of proof has to be linked with statistical hypothesis testing. In such a way, once again, a reliable criterion for determining the standard of proof is established which gives a clear guidance to future litigants.

Figure 2. Daily closing stock prices and volumes for Bekaert from January 1992 to June 1993



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