# The Karlsruher Kapitalmarktdaten-bank (KKMDB): The KISS-Tape

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Discussion Paper No. 191

Current Version:
March 1996

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# Contents

# 1   Introduction

This paper specifies the format of the KISS files created at the University of Karlsruhe (TH). The KISS files are part of the *Karlsruher Kapitalmarktdatenbank (KKMDB)*[1] and comprise intraday stock prices from the floor on the *Frankfurt Stock Exchange (FSE)*. The data are provided by the FSE which is part of the *Deutsche Börse AG*, Frankfurt.

# 2   Floor Trading and the Price Information System KISS

Floor trading is organized as an agency/auction market, i.e. trading is order-driven. Official trading hours are from 10:30 a.m. until 1:30 p.m.[2] The most liquid stocks trade in the continuous market with call markets integrated at the open, at noon and at the close of the trading day. The less liquid stocks trade only once a day in the call market at noon.

The *amtliche Kursmakler* is responsible for setting prices in the *Amtlicher Markt* as the first tier on the FSE. A Kursmakler has the obligation to set prices which properly reflect current market conditions. Floor trading and screen-based trading on IBIS are integrated in that the Kursmakler takes the supply and demand conditions on IBIS into account while setting prices on the floor. During the opening, noon and closing batch auction the Kursmakler fixes a single price which maximize the volume of trade. The single price is called the *Einheitskurs* or *Kassa Kurs*. In the continuous market the Kursmakler sets prices whenever possible.[3]

On September 16, 1987, the price information system KISS (Kurs Informations Service System) was introduced to enhance market transparency. KISS provides data on prices, dividends and price change announcements for a wide range of securities. In addition the intraday prices of the DAX are shown.[4]

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[1] The KKMDB overlaps to some extent with the *Deutsche Finanzdatenbank (DFDB)*. See Bühler et al. [1]. See also http://www-etu.wiwi.uni-karlsruhe.de/kapital/projekte/kkmdb.html.

[2] Trading hours were extended on January 15, 1990 from two to three hours.

[3] For a more detailed description of the organization of the FSE see DBAG [3].

[4] A short description of KISS is given in FSE [7].

# 3   KISS data

The KISS data comprises time-stamped prices established by the official Kursmakler on the floor of the FSE since January 2, 1989. The time-stamp is accurate to the minute. Currently quote and volume data from intradaily trading on the floor are not available.[5]

In addition time-stamped prices and volume data from screen-based trading on IBIS are available. These data are distributed via the IBIS tape.[6]

## 3.1   Securities

Currently transaction data for the 30 component stocks of the DAX could be provided.[7] The DAX stocks are the most liquid stocks on the German stock market and account for about 80% of total trading volume.[8] The codes and names of the stocks are listed in appendix B.

## 3.2   Indices

Based on the KISS data the DAX[9] is calculated every minute.[10] The calculation of the DAX starts some minutes after the opening at 10:30 a.m. To calculate the opening DAX the opening prices of at least 15 component stocks must be available and these stocks must represent 70% of the total market capitalization of DAX stocks. On average, the first DAX price is available at 10:32:45 a.m. with a standard deviation of 30.09 seconds.[11]

# 4   Data File Structure

The KISS data are stored in ASCII files with one transaction per line. All records are of fixed length. The fields of each record are separated by a single blank. Hence, a data file

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[5]However, volume data are available on a daily basis. For details see Göppl/Lüdecke/Sauer [8].

[6]See Lüdecke [12].

[7]DAX is a trademark of *Deutsche Börse AG*, Frankfurt. Aggregated volume data are tabulated in Deutsche Börse AG [6].

[8]See Göppl et al. [11].

[9]For a description of the index see Deutsche Börse AG [2].

[10]The index price is recorded only if there is a change in price. Since June 15, 1995, also the IBIS DAX is available during the FSE official trading hours.

[11]Since April 7, 1994, there are about 208 index prices a day, hence there are calculations of the DAX after trading is closed. This is because Kursmaklers are allowed to correct prices after the official trading hours.

looks like a simple spread sheet.

Currently there are six files, one for every year. The names of the ASCII files will be:

<div align="center">KISSyy.DAT</div>

where

<div align="center">yy: year number 89 – 94</div>

All files are of the same structure which is shown in table 1.

<div align="center">Table 1:</div>
<div align="center">KISS data file structure</div>

| Field No. | Field Name | Content | Format |
|-----------|------------|---------|--------|
| 1 | WPNR | Security Code | Numeric 6.0 |
| 2 | DATUM | Date | YYMMDD |
| 3 | ZEIT | Time | HH:MM:SS |
| 4 | KART | Transaction Flag | Character 1 |
| 5 | KURS | Transaction Price | Numeric 9.3 |
| 6 | ZUSATZ | Price Indication | Character 4 |

The meaning of these fields is given below:

**WPNR:** The official 6-digit security code assigned to every security by *Wertpapier-Mitteilungen (WM)*, Frankfurt.

**DATUM:** The date of transaction, where

    YY    Year,

    MM    Month,

    DD    Day.

**ZEIT:** The time of transaction, where

    HH    Hour,

    MM    Minute,

    SS    Second.

**KART:** Indicates if the price was established in the call or continuous market, where

> K    *Kassa-Kurs*, i.e. the single price established in the noon auction,

> V    *variabler Kurs*, i.e. a price established in the continuous market.

> Because the opening and closing price are also established in a single price auction, the flags corresponding to the first and the last price of a trading day are not correct in having a 'V'.

**KURS:** The *exchange price* of a transaction as established by a Kursmakler. The Kursmakler charges the so called *Courtage* which is currently 0.04 percent of market value in case of DAX stocks.[12]

**ZUSATZ:** A flag the Kursmakler appends to the price if excess supply or demand was in effect. The price flag indicates ex-post, i.e. after a trade, how orders were filled under the particular market conditions. The price indications are listed in appendix A. In case of highly liquid stocks as the DAX stocks, price indications are rare. For example, in 1994, there are only 361 out of 289668 transaction prices which posses an indication other then blank, i.e. *bezahlt*.

The data contain no information about when a stock goes ex dividend or ex right issue. This information is obtainable from the KKMDB in separate data sets.[13]

**Data example:**

Below an extract of the 1994 KISS file is shown. The rows contain the transaction prices of the *Daimler Benz AG* (security code 550000) on the 1st of July in 1994. The flag in the right most column is always blank which indicates that there is no excess in supply or demand at the current market price.

```
550000 940701 11:40:00 V 00724.000
550000 940701 11:40:00 V 00724.000
550000 940701 11:45:00 V 00724.500
550000 940701 11:47:00 V 00723.500
550000 940701 11:47:00 V 00723.000
550000 940701 11:48:00 V 00722.000
550000 940701 11:52:00 V 00723.000
```

## 4.1   Distribution of data

The KISS data are distributed in a packed version on 8mm tapes (DL 112 m/367 ft).

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[12]See Deutsche Börse AG [5]. The reduced courtage for stocks is in effect since July 1, 1994.

[13]See Göppl/Lüdecke/Sauer [10] for a description of the data on dividends and right issues.

The data are packed using ZIP under LINUX[14] version 2.34. ZIP is compatible with the MS-DOS[15] version of PKZIP, thus the data can be transported into a DOS environment without problems. There is one packed data file for every calendar year and the file names will be:

KISSyy.ZIP

where

yy:  year number 89 – 94

The KISS files are copied using the TAR command. To restore the data proceed as follows:

1. Copy the ZIP-files to your hard disk using the TAR command with the appropriate options.

2. Unpack the data using UNZIP.

Thereafter you should find the KISSyy.DAT files on your hard disk, otherwise start again.

## 4.2   Size of the KISS files

Table 2 indicates the amount of data by year measured in megabytes and the number of records.

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[14]LINUX is not a trademark, and has no connection to UNIX or to Unix System Labratories. For the TAR command see Welsh/Kaufman [13].

[15]MS-DOS is a trademark of Microsoft Corporation.

Table 2:

Size of the KISS files[a]

| Year | No. of records | ASCII[b] | ZIP |
|---|---|---|---|
| 1989 | 104424 | 4.60 MB | 0.50 MB |
| 1990 | 230064 | 12.17 MB | 1.48 MB |
| 1991 | 253339 | 10.88 MB | 1.24 MB |
| 1992 | 283407 | 12.21 MB | 1.35 MB |
| 1993 | 322482 | 12.99 MB | 1.47 MB |
| 1994 | 339985 | 12.41 MB | 1.49 MB |
| $\Sigma$ | 1533701 | 65.26 MB | 7.53 MB |

[a]Due to problems with KISS on the FSE there are missing data for the following days: January 2, 1990, February 7, 1990, January 21, 1991, February 24, 1992. On October 11, 1991, data availability starts at 12 a.m. On March 13, 1992, only opening prices are available.

[b]ASCII refers to the unpacked version of the KISS files, whereas ZIP refers to the packed version of the files.

# References

[1] **Bühler, W., H. Göppl, H.P. Möller und Mitarbeiter.** *Die Deutsche Finanzdatenbank (DFDB).* Zeitschrift für betriebswirtschaftliche Forschung, Sonderheft 31 (1993), S. 287-331.

[2] **Deutsche Börse AG.** *German Stock Index DAX.* Frankfurt: Deutsche Börse AG, 1994.

[3] **Deutsche Börse AG.** *Organization and Function.* Frankfurt: Deutsche Börse AG (1994).

[4] **Deutsche Börse AG.** *Börsenordnung* Frankfurt: Deutsche Börse AG (1995).

[5] **Deutsche Börse AG.** *Kursmakler Commission Fees.* Frankfurt: Deutsche Börse AG (1995).

[6] **Deutsche Börse AG.** *Fact Book 1994.* Frankfurt: Deutsche Börse AG (1995).

[7] **Frankfurter Wertpapierbörse (FWB).** *Kurs Informations Service System – Kurzbeschreibung.* Frankfurt: FWB (1990).

[8] **Göppl, H., T. Lüdecke, A. Sauer.** *Datenbank-Handbuch Teil I: Beschreibung der Kursdaten für Aktien und Optionsscheine.* Universität Karlsruhe (1995).

[9] **Göppl, H., T. Lüdecke, A. Sauer.** *Datenbank-Handbuch Teil III: Beschreibung der Stammdaten von Aktien.* Universität Karlsruhe (1991).

[10] **Göppl, H., T. Lüdecke, A. Sauer.** *Datenbank-Handbuch Teil V: Beschreibung der Termindaten.* Universität Karlsruhe (1991).

[11] **Göppl, H., T. Lüdecke, C. Schlag, H. Schütz**: *The German Equity Market: Risk, Return, and Liquidity.* In: Bühler, W., Hax, H., Schmidt, R. (Hrsg.) *Empirical Research on the German Capital Market.* Berlin: Springer Verlag (1996), forthcoming.

[12] **Lüdecke, T.** *The Karlsruher Kapitalmarktdatenbank (KKMDB): The IBIS-Tape.* Discussion Paper No. 190 (1996).

[13] **Welsh, M. and L. Kaufman.** *Running Linux.* Sebastopol: O'Reilly & Associates (1995).

# A  Price Indications

| Code | Meaning[a] |
|------|------------|
| blank | bezahlt |
| * | bezahlt* [b] |
| BB | bezahlt Brief |
| BB* | bezahlt Brief* |
| BG | bezahlt Geld |
| BG* | bezahlt Geld* |
| C | Kompensationsgeschäft |
| EB | etwas bezahlt Brief |
| EB* | etwas bezahlt Brief* |
| EG | etwas bezahlt Geld |
| EG* | etwas bezahlt Geld* |
| RB | rat./rep. Brief |
| RB* | rat./rep. Brief* |
| RG | rat./rep. Geld |
| RG* | rat./rep. Geld* |
| B | Brief |
| B* | Brief* |
| G | Geld |
| G* | Geld* |
| T | Taxe |
| TA | Teilausführung |
| 7[c] | gestrichen |
| _A (mit $\emptyset$-Kurs) | ausgesetzt |
| _E (mit $\emptyset$-Kurs) | eingestellt |
| (mit $\emptyset$-Kurs) | gestrichen |
| _B (mit $\emptyset$-Kurs) | gestrichen Brief |
| _G (mit $\emptyset$-Kurs) | gestrichen Geld |
| _Z (mit $\emptyset$-Kurs) | gestrichen Ziehung |

[a] For details see DBAG [4, § 33].

[b] The price indication * means that small orders could not be traded where small means orders of less than 10 shares. This indication is particular important in case of illiquid stocks.

[c] Since April 2, 1991 the price is set to zero in case of opening prices.

# B  Security Codes and Names

| Code[a] | Sym. | Full name | Sec.Type | avail. |
|---|---|---|---|---|
| 515100 | BAS | BASF | AKTIEN | 890102 |
| 519000 | BMW | BAYERISCHE MOTOREN WERKE | STAMMAKTIEN | 890102 |
| 543900 | CON | CONTINENTAL | AKTIEN DM 5 | 890102 |
| 550000 | DAI | DAIMLER-BENZ | AKTIEN | 890102 |
| 550700 | DBC | DEUTSCHE BABCOCK | STAMMAKTIEN | 890102 |
| 551200 | DGS | DEGUSSA | AKTIEN | 890102 |
| 575200 | BAY | BAYER | AKTIEN | 890102 |
| 575800 | HFA | HOECHST | AKTIEN | 890102 |
| 593700 | MAN | MAN | STAMMAKTIEN | 890102 |
| 604843 | HEN3 | HENKEL KGAA | VORZUGSAKTIEN O. ST. | 890102 |
| 627500 | KAR | KARSTADT | AKTIEN | 910702 |
| 648300 | LIN | LINDE | AKTIEN | 910704 |
| 656000 | MMW | MANNESMANN | AKTIEN | 890102 |
| 660200 | MET | METALLGESELLSCHAFT | AKTIEN DM 5 | 890102 |
| 695200 | PRS | PREUSSAG | AKTIEN | 890102 |
| 703700 | RWE | RWE | STAMMAKTIEN | 890102 |
| 717200 | SCH | SCHERING | AKTIEN DM 5 | 890102 |
| 723600 | SIE | SIEMENS | STAMMAKTIEN | 890102 |
| 748500 | THY | THYSSEN | AKTIEN | 890102 |
| 761440 | VEB | VEBA | AKTIEN DM 5 | 890102 |
| 762620 | VIA | VIAG | AKTIEN | 890102 |
| 766400 | VOW | VOLKSWAGEN | STAMMAKTIEN | 890102 |
| 781900 | KFH | KAUFHOF HOLDING | STAMMAKTIEN | 910702 |
| 802000 | BHW | BHW-BANK | INHABER-STAMMAKT. DM 5 | 890102 |
| 802200 | BVM | BAYERISCHE VEREINSBANK | INHABER-STAMMAKT. DM 5 | 890102 |
| 803200 | CBK | COMMERZBANK | AKTIEN | 890102 |
| 804010 | DBK | DEUTSCHE BANK | AKTIEN DM 5 | 890102 |
| 804610 | DRB | DRESDNER BANK | AKTIEN DM 5 | 890102 |
| 823210 | LHA | DEUTSCHE LUFTHANSA | STAMMAKTIEN | 910703 |
| 840400 | ALV | ALLIANZ HOLDING | VINK. NAMENS-AKTIEN | 890102 |
| 846900 | DAX | DEUTSCHER AKTIENINDEX (DAX) | PERFORMANCEINDEX | 900102 |

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[a]Underlined codes refer to stocks admitted for option trading on the *Deutsche Terminbörse (DTB)* as of December 31, 1995. Stock specific data could be obtained from the KKMDB, see Göppl/Lüdecke/Sauer [9].

# C  KKMDB: Rules & Regulations

The *Institut für Entscheidungstheorie und Unternehmenforschung* supports empirical research in the *academic* field by providing data from the *Karlsruher Kapitalmarkt-Datenbank (KKMDB)*. The approach of the Institute is to give data of reasonable size for specified research projects of academic institutions and their members. This has to be stated by the dean of faculty together with a declaration on the exclusive use of these data for this project. In addition a one page project description is required and the results of the research must be made available to the Institute. The Institute is obliged to charge a *fee* depending on the data volume.

In case of KISS data there is a fee of 75.00 DM for every data file. Hence, the fee for the tape with the complete history of data is currently 450.00 DM.

Please send your request to the address below:


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